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Richard Max Strahan

# A NEW PARADIGM FOR CONSERVATION OF GREAT WHALES IN THE URBAN SEA OF THE UNITED STATES—SPECIES IN NEED OF A "GREEN KNIGHT"

Richard Max Strahan*

**Abstract**: The great whales of the North Atlantic live, breed, and are now being injured and killed in the "Urban Sea"—a growing feature of the United States coastline resulting from coastal development. The primary threats to great whales are anthropogenic: vessel strikes and entanglement in commercial fishing gear. Despite their popularity as cultural icons, and federal and state protective regulations on the books, endangered whales increasingly suffer collateral damage from coastal commerce. Ample law and technology exist to eliminate these problems. Rather than advancing the protection of whales, however, government agencies and some nonprofit organizations have aggravated the problem through their lack of meaningful action. This essay examines systemic reasons why harmful entanglements in commercial fishing gear continue to occur and are likely to go on unabated into the future. The essay then proposes a paradigm shift for approaching these problems that will protect whales and will also benefit other wildlife in the ocean and its coastal Urban Sea.

* Founder and chief science officer of Whale Safe USA, a citizen organization that aims to protect the ocean environment by encouraging state and federal governments to establish a "whale safe" environmental review standard for their licensing and regulating of commercial and industrial activities that occur in the marine environment or affect it—including commercial fishing and commercial whale watch tourism. The author has litigated a number of marine mammal protection lawsuits as a non-attorney plaintiff pro se. See Strahan v. Holmes, 595 F. Supp. 2d 161 (D. Mass. 2009); Man Against Extinction v. Hall, No. C 08-01488 SI, 2008 WL 3549197 (N.D. Cal. Aug. 13, 2008); Strahan v. Pritchard, 473 F. Supp. 2d 230 (D. Mass. 2007); Strahan v. Linnon, 967 F. Supp. 581 (D. Mass. 1997), aff'd, 187 F.3d 623 (1st Cir. 1998); Strahan v. Coxe, 939 F. Supp. 963 (D. Mass. 1996), aff'd, 127 F.3d 155 (1st Cir. 1997); Bays' Legal Fund v. Browner, 828 F. Supp. 102 (D. Mass. 1993).

## Introduction

The status of the great whales[1] in law and biology makes it fitting to describe them as "Twenty-Ton Canaries." Like the small, sensitive birds that warned miners of lethal odorless gases in the coal mines of the 19th century, the great whales in effect serve a utilitarian function, warning the public of imminent environmental dangers in the coastal environment. Today, most deaths and injuries of great whales are caused by humans, and occur in two settings—the diminishing killing of whales by a very few nations' whaling fleets,[2] and the dramatically increasing harms collateral to the growing development and industrialization of the coastal marine environment of the United States and other nations.[3]

Today the number of great whales killed by Japan's small hunting fleet is dwarfed by the collateral killing of these whales along the coastline of the United States from commercial and industrial activity. Coastal marine fisheries in the United States and Canada routinely kill and injure great whales by entangling them in commercial fishing gear—the

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[1] The term "great whales" typically refers to the baleen whales and the sperm whale. John Bannister, Great Whales 3 (2008). The North Atlantic right whale (*Eubalaena glacialis*), the southern right whale (*Eubalaena australis*), the North Pacific right whale (*Eubalaena japonica*), the humpback whale (*Megaptera novaeangliae*), the fin whale (*Balaenoptera physalus*), the sei whale (*Balaenoptera borealis*), the sperm whale (*Physeter catodon*), and the blue whale (*Balaenoptera musculus*) are listed as protected species under the federal Endangered Species Act. *See* Endangered and Threatened Wildlife, 50 C.F.R. § 17.11 (2008). In 2008 the National Marine Fisheries Service divided the previously listed single species known as the northern right whale (*Eubalaena glacialis*) into two separate species, the North Atlantic right whale (*Eubalaena glacialis*) and the North Pacific right whale (*Eubalaena japonica*). Endangered Status for North Pacific and North Atlantic Right Whales, 73 Fed. Reg. 12,024 (March 6, 2008). The author has disputed the validity of this division in a pending notice of intent to sue. This essay, however, employs the currently official nomenclature.

[2] Currently, the minke whale is the main species of whale commercially hunted. *See* The Mammal Society, Fact Sheet: The Minke Whale *Balaenoptera acutorostrata*, http://www.abdn.ac.uk/mammal/minke.shtml (last visited Apr. 27, 2009). The great whales are generally not commercially hunted, although Iceland and Japan hunt fin whales, and Japan has proposed hunting humpback whales. *See* Richard Black, *Iceland Sets Major Whaling Quota*, BBC News, Jan 27, 2009, http://news.bbc.co.uk/2/hi/science/nature/7854705.stm; *Japan Drops Humpback Whale Hunt*, BBC News, Dec. 21, 2007, http://news.bbc.co.uk/2/hi/asia-pacific/7155255.stm. Additionally, NMFS allows Alaskan Eskimos to hunt up to seventy-five bowhead whales under the aboriginal subsistence exemption of the International Whaling Commission. Aboriginal Subsistence Whaling, 50 C.F.R. § 230.4 (2008); Aboriginal Subsistence Whaling Quotas, 74 Fed. Reg. 10,035, 10,035–36 (Mar. 9. 2009).

[3] *See* Allison H. Glass et al., U.S. Dep't of Commerce, Mortality and Serious Injury Determinations for Baleen Whale Stocks Along the United States Eastern Seaboard and Adjacent Canadian Maritimes, 2002–2006, at iv, 3–5 (2008).

primary focus of this essay.[4] Additionally, ships traversing the coastal seas regularly strike great whales.[5] These impacts on great whales from coastal industrialization violate state and federal laws meant to protect them from these direct and collateral threats. This essay asserts that these killings and injuries continue—and are on the increase—because of a systemic failure of the prevailing paradigm of current law that manages and nominally offers protection to the great whales and their coastal marine habitat. It is the opinion of the author that these harms are to a large extent preventable and that the fact that they continue offers an opportunity to evaluate the effectiveness of the fundamental social and legal paradigm currently employed to protect the environment and great whales from the adverse affects of human activity.[6]

The waters off the northeast coast of the United States have been referred to as part of the Urban Sea.[7] The development impacts of the great coastal cities do not stop at the docks of their ports but continue out into the ocean. The Urban Sea reflects the commerce of the East Coast and the huge volume of shipping flowing through the great ports of New York, Philadelphia, and Boston. It is impacted by pollution and detritus flowing from inland and port cities and cast off by ships at sea. Its waters receive air pollution from inland industry and the smokestack emissions of ships. It is infused with noise reverberating out from vessels and Navy sonar.[8] The coastal sea is also laced with thousands of installations of fishing gear from fishing fleets, all of which can kill great whales, and some of which are never retrieved by fishermen but remain as derelict "ghost gear" drifting with the currents, continuing to kill without purpose. Conditions in the Urban Sea have deteriorated to the

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[4] *See* Jamison Smith et al., Nat'l Marine Fisheries Service, Large Whale Entanglement and Ship Strike Report 2005, at 2–4, 6 (2008), *available at* http://www.nero.noaa.gov/whaletrp/plan/disent/2005%20Large%20Whale%20Entanglement%20and%20Ship strike%20Report.pdf.

[5] *See id.* at 7; David Laist et al., *Collisions Between Ships and Whales*, 17 Marine Mammal Sci. 35, 35–36, 58–59 (2001).

[6] *See* James E. Scarff, *The International Management of Whales, Dolphins and Porpoises: An Interdisciplinary Assessment* (pt. 2), 6 Ecology L.Q. 571, 597–98 (1977).

[7] *See generally* Lee E. Koppelman et al., The Urban Sea: Long Island Sound (1976) (discussing the commercial development of Long Island Sound as "a microcosm of national—even global—situations"). The Urban Sea is the area of the ocean starting at the coastline and spanning outwards to about 100–200 miles off the coast. It is an artificial entity manufactured by the industrialization of the coastal seas of the United States.

[8] *See* Brandon Southall et al., Addressing the Effects of Human-Generated Sound on Marine Life: An Integrated Research Plan for U.S. Federal Agencies 13–14 (2009); *see* Robin Kundis Craig, *Beyond* Winter v. NRDC*: A Decade of Litigating the Navy's Active SONAR Around the Environmental Exemptions*, 36 B.C. Envtl. Aff. L. Rev. 353, 353–54 (2009).

point that great whales can no longer survive in these urbanized coastal waters without active protection.

The great whales breed, feed, migrate, and live in the coastal waters of the Urban Sea for a majority of their life spans.[9] Several coastal states—like Massachusetts—list them as native resident species of their states and protect them under state endangered species acts.[10] The federal government has designated Cape Cod Bay and other coastal areas as essential protected habitat for the North Atlantic right whale.[11] Humpback whales breed and feed just twenty miles from downtown Boston on Stellwagen Bank.[12] The proximity of great whale habitat to major metropolitan areas makes the commercial whale-watching industry possible.[13] It also subjects these wild animals to the adverse impacts of the urban environment.

Great whale populations in the North Atlantic are still seriously endangered despite the fact that they have not been hunted for decades; have few natural predators;[14] and do not seem susceptible to lethal pandemic diseases like measles or distemper,[15] although toxins produced from algal blooms have been linked to incidents of mass killings of great whales.[16] It is the collateral destruction of individual whales and their marine habitat caused by the consequences of human commercial and industrial development that must now be seen as the likely cause of future whale extinctions.[17] The whales are frequently injured and killed by human activity in the Urban Sea and these casualties occur in numbers and rates that threaten the whales' continued

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[9] Like birds need trees, the great whales require coastal habitat in the Urban Sea for their survival as species.

[10] 321 Mass. Code Regs. 10.90 (2009) (Listing the great whales as protected species).

[11] Critical Habitat for Northern Right Whales, 50 C.F.R. § 226.203 (2008).

[12] Stellwagen Bank National Marine Sanctuary, Marine Life, http://stellwagen.noaa.gov/about/keyresources.html (last visited Apr. 27, 2009).

[13] *See* Pinnacle-travel.org, Whale Watching, http://whale-watching.pinnacle-travel.org/history.htm (last visited Apr. 27, 2009).

[14] *See* Whale Trust, Population Status: How Many Humpback Whales Are There in the North Pacific?, http://www.whaletrust.org/whales/whale_conservation.html (last visited Apr. 27, 2009).

[15] There are, however, reports that raise these concerns as well. *See* V.S. Hinshaw et al., *Characterization of Two Influenza A Viruses from a Pilot Whale*, 58 J. Virol. 655, 655 (1986).

[16] Joseph R. Geraci, *Humpback Whales (*Megaptera novaangliae*) Fatally Poisoned by Dinoflagellate Toxin*, 46 Can. J. Fisheries & Aquatic Sci. 1895, 1895–96 (1989); Diane Dumanoski, *Red Tide-Laden Mackerel Believed Cause of Humpback Whale Deaths*, Boston Globe, Dec. 20, 1987, at 29, 42.

[17] *See* Richard Merrick et al., *Endangered Species and Populations*, *in* Encyclopedia of Marine Mammals 368, 373 (William F. Perrin et al. eds., 2d ed. 2008).

survival by frustrating the capacity of species populations to regain and maintain stable, sustainable, healthy population levels.[18]

The continued killings may critically deplete their small current numbers and precipitate extinction of species long after commercial whale hunting has ended.[19] Great whales possess problematic biological parameters for survival compounded by their depleted numbers—specifically, great whales are long-lived, slow to reproduce, and incapable of quick population recoveries.[20] This is why the historical cessation of hunting right and humpback whales has not resulted in a rapid recovery of species populations.[21] As this "small-population" problem demonstrates, so long as their numbers remain low, whales remain vulnerable to extinction.[22]

The ruthless hunting of great whales caused the extinction of at least one population.[23] Right whales were recognized as being so close to extinction that an international treaty has totally banned their hunting since 1931.[24] Whaling in general became a regulated activity in 1945 under an international treaty signed by all nations then whaling.[25] However, that treaty's intent was essentially commercial, designed to prevent over-hunting to ensure that the whale-hunting industry could survive over time.[26] American and Canadian commercial whaling died out primarily due to public sentiment and a lack of commercial interest, not due to law or a lack of whales.[27] In the early 1970s, Congress

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[18] *See* Hal Caswell et al., *Declining Survival Probability Threatens the North Atlantic Right Whale*, 96 Proc. Nat'l Acad. Sci. 3308, 3312–13 (1999).

[19] *See* Lonny Lippsett, *Diving into the Right Whale Gene Pool*, Oceanus, Vol. 44, No. 3, 2005 at 18, *available at* http://www.whoi.edu/cms/files/kjoyce/2006/1/Oceanus-whale-DNA_7086.pdf. Studies suggest "the low level of genetic variation in the small North Atlantic right whale population" contributes to their low reproduction rate. *Id.*

[20] *Id.*

[21] *Id.*

[22] *See* Anthony Ronald Sinclair et al., Wildlife Ecology, Conservation, and Management 312 (2d ed. 2006). When wildlife populations go below a certain size they lose their ability to adapt to environmental stress and face an enhanced risk of extinction from this fact alone. *See id.*

[23] *See* James David Darling & Jim Darling, Gray Whales 24 (1999). The Atlantic gray whale was possibly hunted to extinction by the end of the 17th century. *Id.*

[24] Convention for the Regulation of Whaling art. 4, Sept. 24, 1931, 49 Stat. 3079, 155 L.N.T.S 351. Japan did not sign on to this treaty. P. van Heijnsbergen, International Legal Protection of Wild Flora and Fauna 14–15 (1997).

[25] International Convention for the Regulation of Whaling, Dec. 2, 1946, 62 Stat. 1716, 161 U.N.T.S. 72.

[26] Steinar Andresen, *The Effectiveness of the International Whaling Commission*, 46 Arctic 108, 109 (1993).

[27] *See* Eric Jay Dolin, Leviathan 353–69 (2007).

passed two relatively stringent statutes that protect whales: the Marine Mammal Protection Act and the Endangered Species Act.[28]

That great whales are being killed in the United States and Canadian Urban Sea may seem odd, because they enjoy such strong public support as well as full protection as endangered species under the law. Since the time of *Moby Dick*, whale conservation in the United States and Europe has enjoyed both political and emotional public support.[29] In part because of their massive size, they are among the most charismatic of wildlife, celebrity species that the public will never again allow to be hunted in the United States or Canada.[30] Despite the charismatic status of great whales, the threats against them posed by the Urban Sea have resulted in little public outcry—in great measure because, in this author's opinion, insufficient information about these threats has reached the public.

This is of interest because sympathetic public pressure is a necessary factor to prompt government agencies to manage marine commerce in order to protect the great whales' use of coastal marine habitat. This author believes that lack of public awareness prevents criticism of commercial fishermen's role in whale entanglements.[31] This lack of public alarm facilitates commercial interests' ability to avoid substantial restraints on their activities by government agencies or from private lawsuits. Government agencies also do not face enough political pressure from non-profit groups or the scientific community to change the status quo. As a result, state and federal governments have little interest in stopping the collateral killing and injuring of great whales and tend to avoid significant regulation of commercial fishing designed to eliminate whale entanglements.[32] For example, neither federal nor state wildlife agencies, as a matter of policy, prosecute individuals who en-

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[28] Marine Mammal Protection Act, 16 U.S.C. §§ 1361–1423h (2006); Endangered Species Act, 16 U.S.C. §§ 1531–1544 (2006).

[29] *See, e.g.*, Dolin, *supra* note 27, at 231–32 (describing the letter from "a Polar Whale" in the Honolulu Friend newspaper letters section).

[30] On the other hand, even the governments of New Zealand and Australia are militant about stopping Japanese whaling. *See Australia Warns Japan Over Whales*, BBC News, May 24, 2005, http://news.bbc.co.uk/2/hi/asia-pacific/4574451.stm; Stephanie Kennedy, *Australia Pressures IWC on Japanese Whaling*, ABC News, Mar. 7, 2008, http://www.abc.net.au/news/stories/2008/03/07/2182722.htm.

[31] There is literature available that documents the hazards to whales but it is mostly found in scientific publications rather than major media outlets. *See, e.g.*, Scott D. Kraus et al., *North Atlantic Right Whales in Crisis*, 309 Science 561, 561 (2005) (describing the effects of fishing gear entanglement on right whales).

[32] Outside of the North Atlantic right whales, the author is aware of no extensive ongoing state or federal recovery efforts for whales.

tangle whales in fishing gear or strike whales with a ship.[33] This state of affairs deserves analysis and explanation.

Functioning as the coal miner's canary, the great whales in the North Atlantic Urban Sea warn not only of the escalating destruction of the coastal seas, but of the inability of the current environmental protection regime of the United States to meaningfully mitigate or prevent the killing—if not the extinction—of these celebrity species of wildlife. As a focal case in point, Part I of this essay addresses one of the major threats to the survival and welfare of North Atlantic great whales—the distressing and illuminating problem of injuries and death attributable to entanglement in commercial fishing gear. Part II then undertakes a detailed review of legal protections for great whales under United States statutes and regulations, and international treaties in which this nation participates. Part III sets out the author's observations of delinquencies of omission and commission by government agencies, nonprofit organizations, and researchers, with regard to threats facing great whales and also offers some possible explanations. Part IV offers potential solutions in light of this essay's analysis.

## I. Hazards to Great Whales: Entanglement by Commercial Fishing Gear in the Urban Sea

### A. *Entanglement Basics: Threats Posed by Current Commercial Fishing Practices*

One of the two main anthropogenic threats to great whales in the Urban Sea is their injurious entanglement in commercial fishing gear.[34] In large part because of the practices of its commercial fishing industry over the last forty years, the United States contributes significantly to this threat to great whales—despite theoretically stringent statutory protection.[35]

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[33] *See* Press Release, Pub. Employees for Envtl. Responsibility, Whale Prots. Rarely Enforced (July 1, 2004), http://www.peer.org/news/print_detail.php?row_id=380.

[34] Kraus et al., *supra* note 31, at 561; Andrew J. Read, *The Looming Crisis: Interactions Between Marine Mammals and Fisheries*, 89 J. Mammalogy 541, 541, 543 (2008). The other threat is ship strikes. *See* Smith et al., *supra* note 4, at 2–3; Laist et al., *supra* note 5, at 35–37.

[35] *See* Andrew J. Read et al., *Bycatch of Marine Mammals in U.S. and Global Fisheries*, 20 Conservation Biology 163, 164 (2006).

Great whales are routinely caught and entangled by commercial fishing gear.[36] A significant number of the known anthropogenic mortalities and injuries of great whales in the Urban Sea come from entanglement in such gear.[37] Great whales get caught up in ropes (lines) and nets used in the coastal fishing industry.[38] Ropes suspended in the water column have a surprising ability to ensnare, wrap around, and form cinch knots (that is, entangle) upon just about any large moving object that comes in contact with them.[39] The actual mechanics of a whale's entanglement in fishing ropes—particularly involving commercial pot gear and gill nets—is, in the author's opinion, relatively simple to appreciate and to prevent. The defining task in managing commercial fisheries so as to prevent whale entanglement is eliminating the possibility of a whale making physical contact with fishing gear.[40]

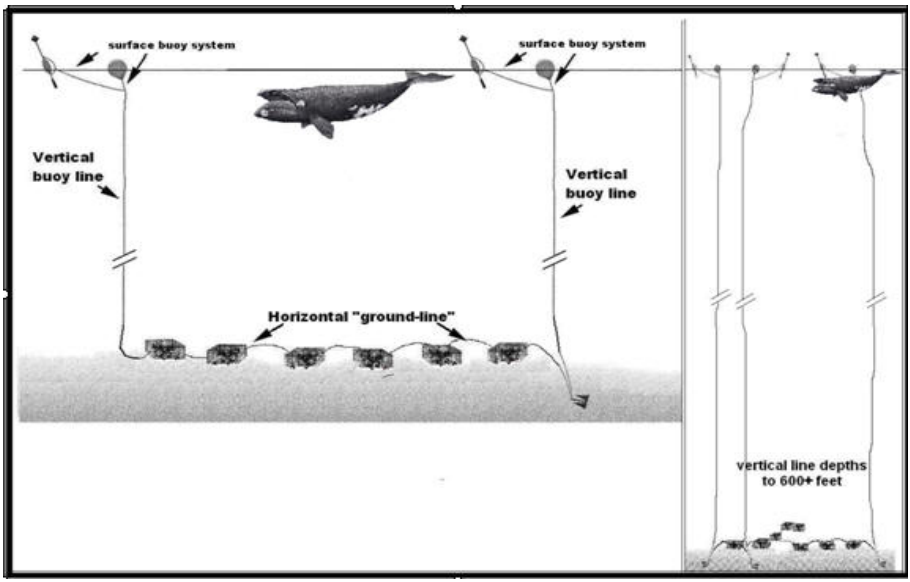


**Figure 1: Typical lobster pot gear deployment in U.S. coastal waters.** Chart courtesy of Boston College Environmental Law Society, 2008.

[36] *See id.* at 167. Ten to thirty percent of North Atlantic right whales and Gulf of Maine humpback whales become entangled each year. *Id.*; *see also* Amanda Johnson et al., *Fishing Gear Involved in Entanglements of Right and Humpback Whales*, 21 Marine Mammal Sci. 635, 635–36 (2005); Kraus et al., *supra* note 31, at 561.

[37] *See* Johnson et al., *supra* note 36, at 636.

[38] *Id.* at 640–41.

[39] The lines used in the coastal fixed gear fishery are generally made of plastic polymers—polypropylene, polyester and the like. *See* Johnson et al., *supra* note 36, at 638.

[40] *See* Read, *supra* note 34, at 543.

Fixed fishing gear is the type of fishing equipment that causes the greatest number of recorded marine mammal entanglements in the Urban Sea.[41] Fixed gear is anchored in position and tended to by fisherman every few days.[42] Fixed gear consists of two kinds of fishing gear: (1) gear using traps (also called pots) tied together in a string (a trawl) that is attached to vertically suspended ropes (vertical buoy lines or VBL) from floating buoys on the sea surface; and (2) sink gill nets that resemble volleyball nets anchored to the sea floor (gill nets).[43]

The fishery for American lobster (*Homarus americanus*) is the most familiar fishery which uses pot gear. Its rectangular box-like wire traps are baited and have entrance holes, but only a small exit for undersized crustaceans.[44] Intensively deployed on the coastal ocean floor, these and similar forms of traps catch fish and crustaceans.[45] The rope that runs horizontally between the adjacent linked pots in a trawl is called a ground-line; if buoyant, it sometimes floats in an upward curve between the traps.[46] The ropes that extend downward from the buoys to the end pots in the trawls are the vertical buoy lines, and are subsequently used to retrieve the trawls of pots.[47] The fishery for American lobsters extends along the Atlantic coast of the United States and Canada from the Bay of Fundy to the Carolinas.

The scale of the threat posed by lobster-set vertical buoy lines is illustrated by the placement of fixed gear at the top of Cape Cod Bay in relation to sightings of North Atlantic Right Whales. To enter Cape Cod Bay, one of their major historical habitats, right whales must pass through a gauntlet of vertical buoy lines anchored to thousands of lobster pot trawls. Evidence suggests that great whales primarily become entangled in the vertical rope lines that stretch from gear on the ocean floor to surface-floating buoys.[48] When an area becomes known as a hot

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[41] *See* Johnson et al., *supra* note 36, at 636.

[42] Each season, a typical lobster pot fisherman may deploy as many as 800 traps configured as trawls, each consisting of twenty or fewer traps. There are two vertical buoy lines per trawl. The fishing gear remains in the water continuously for the duration of the season, which can last up to eight months or more.

[43] *See* Johnson et al., *supra* note 36, at 636–37.

[44] *See* Pots, FAO Fisheries Glossary, *available at* http://www.fao.org/fi/glossary/default.asp (click "Search for Term" hyperlink; then search "Pots").

[45] *See id.*

[46] Johnson et al., *supra* note 36, at 638 & fig.1.

[47] *Id.*

[48] *See id.* at 643 ("Fifty-six percent of the entanglements for [North Atlantic right whales and humpback whales] involved buoy line . . . ."). The author goes on to argue, however, that "[w]hether buoy and surface system lines represent more of an entanglement risk than groundline is currently difficult to determine." *Id.*

spot for lobsters or prey fish, fishermen deploy thousands of traps—with attendant buoys and vertical lines—into a limited expanse of coastal waters, creating a rope forest.

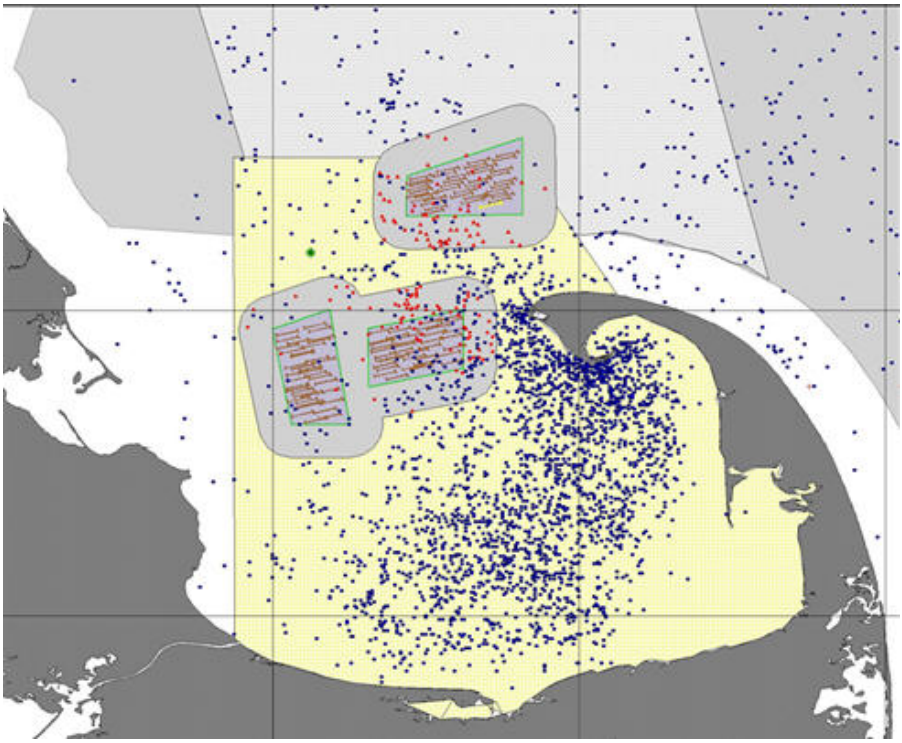

**Figure 2. Lobster trap sets and right whale sightings, Cape Cod Bay**. In this chart, each dot represents a sighting of a North Atlantic right whale in Cape Cod Bay since 1988 (the solid dark area is the land area of Cape Cod and adjacent mainland). The lined quadrilateral zones indicate the locations of just three lobster pot fields where thousands of lobster gear trawls are annually deployed, each set typically with one vertical buoy line attached at either end. Chart created by Jonathan Sege, Boston College Geophysics GIS Lab, 2008.

Great whales can get entangled just from running into this gear as they swim along. As a whale makes physical contact with a vertical buoy line by running into it, the line may wrap itself around a whale's flippers, its tail, its body, and/or even through its mouth, and then set on itself and knot up. Repeated exposures to potentially fatal entanglement are a routine event for a majority of individual great whales in the North Atlantic Urban Sea.[49] It appears that, once entangled, some

[49] *See* Read et al., *supra* note 35, at 167 ("50% to more than 70% of animals in some populations (Gulf of Maine humpbacks and North Atlantic right whales, respectively) have been entangled at least once in their lives . . . .").

whales are able to shed the gear.[50] In other entanglement episodes, owing to the whales' large size, they can break away from some of the fishing gear with only the vertical lines wrapped around them. At other times they carry larger amounts of fishing gear when they break away from an entanglement site. Severe entanglement proceeds over time to constrict, cut, scar, or otherwise injure them, or worse.[51]

Fixed sink gill nets also entangle whales.[52] Gill nets are widely used by the commercial fishing industry for harvesting ground fish, the species of commercial fish that customarily live on or near the ocean floor—principally haddock, flounder, cod, skate, and fluke. Such nets also have vertical buoy lines that can entangle whales.[53] Gill nets unfortunately do not discriminate in what they kill. They catch and kill many species of fish and wildlife that are not targets of the licensed fishery—so-called bycatch—including seals, dolphins, turtles, and other marine mammals besides whales.[54] Gill nets can be aptly described as a "wall of death." Nets can become transient killers when they break loose and drift randomly around bays and oceans as derelict "ghost nets," holding entrapped and decomposing sea creatures, sometimes for years, until the nets finally disintegrate.[55]

Eyewitness accounts of entanglements are rare, despite years of researchers observing these whales.[56] This does not mean that entanglement is a rare event, however. Further compelling evidence for a high rate of entanglement comes from reports assessing rope-scarring on whales, the origin of which is overwhelmingly likely to have been caused by entanglement in fishing gear.[57] Over seventy-five percent of

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[50] *See* Johnson et al., *supra* note 36, at 642.

[51] *See* Michael J. Moore et al., Fatally Entangled Right Whales Can Die Extremely Slowly, (Sept. 18–21, 2006) (paper presented at OCEANS'06 MTS-IEEE Conference, Boston, MA), *available at* https://darchive.mblwhoilibrary.org/bitstream/1912/1505/1/ Moore%20et%20al%20IEEE%20Entanglements%202006060330-71.pdf.

[52] *See* Johnson et al., *supra* note 36, at 636.

[53] The gill net is intended to be a simple killing machine, catching any fish swimming through the water. When the head of a fish pushes through any of the individual openings in the invisible monofilament net, a nylon loop cinches around the gills behind the head. The caught fish is held in place with impaired gill breathing until it literally drowns.

[54] *See* Read, *supra* note 34, at 542.

[55] A ghost net can drift aimlessly for more than a dozen years before it starts to disintegrate or becomes so balled-up that it can no longer kill. *See, e.g., Derelict Net Entangled, Killed 3,500 Animals in 15 Years*, SanJuanJournal.com, June 11, 2008, http://www.pnwlocalnews.com/sanjuans/jsj/news/19785739.html.

[56] *See* Mason Weinrich, *Behavior of a Humpback Whale (*Megaptera Novaeangliae*) Upon Entanglement in a Gill Net*, 15 Marine Mammal Sci. 559, 559–61 (1999).

[57] *See, e.g.*, Amy Knowlton et al., Analysis of Scarring on North Atlantic Right Whales (*Eubalaena glacialis*): Monitoring Rates of Entanglement Interaction: 1980–2002 11 (Feb.

North Atlantic right whales evidence scarring from such entanglement in fishing gear,[58] as do approximately half of humpback whales.[59] An assessment of the problem from field reports leaves no doubt that entanglement is a routine and dangerous phenomenon. As a recent report noted: "Entanglement in fishing gear is a significant cause of injury and mortality to many marine mammal populations throughout the world. Large whale populations along the U.S. east coast remain susceptible to entanglement, despite management efforts to reduce overfishing of lobster and groundfish species."[60] Entanglement in fixed fishing gear inflicts significant mortality and serious injury on humpback whales[61] and North Atlantic right whales,[62] threatening the survival of these endangered species.

As noted above, vertical buoy lines are involved in the majority of recorded fixed-gear entanglements of whales.[63] There are an abundance of reports from the field of injured, dead, or disabled great whales entangled only in vertical buoy lines and attached buoys, often just a single line. On the other hand, the author is not aware of any great whale that has ever been sighted entangled solely in ground-line. When whales are observed dragging pots and other parts of pot gear, including ground-lines in these entanglements, the ground-lines are tied to vertical lines. Right whales in particular spend much of their lives swimming at or near the surface. Ground-lines hug or hover very near the seafloor. Great whales seldom dive to the seafloor and, when they do, appear to make vertical descents and ascents, not the traversing lateral movement that would increase exposure to ground-line. In addition, the ground-lines' lateral orientation with two ends weighted down by attached traps creates a geometry that tends to limit entan-

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2005) (unpublished report to the National Marine Fisheries Service) (on file with author); Jooke Robbins & David K. Mattila, Ctr. for Coastal Studs., Monitoring Entanglements of Humpback Whales (*Megaptera novaeangliae*) in the Gulf of Maine on the Basis of Caudal Peduncle Scarring (2001) (unpublished report to the 53rd Scientific Committee Meeting of the International Whaling Commission, Hammersmith, London), *available at* http://www.coastalstudies.org/what-we-do/whale-rescue/scar-study.htm. Many whales are seen annually with fresh surface scarring caused by fishing gear entanglement. *See id.*

[58] Knowlton et al., *supra* note 57, at 11.

[59] Robbins & Mattila, *supra* note 57.

[60] Johnson et al., *supra* note 36, at 636.

[61] *Id.* "[A] scar-based study of Gulf of Maine humpback whale entanglement rates indicated that more than half of the population had experienced a previous entanglement, and 8%–25% received new injuries each year." *Id.*

[62] *Id.* "Mortality from entanglements in fishing gear, in particular fixed gear, is a factor inhibiting the recovery of the critically endangered North Atlantic right whale (*Eubalaena glacialis*)." *Id.*

[63] *See id.* at 640–41.

glement opportunity, and therefore risk. For a number of reasons based on physics and behavior, therefore, ground-line participation in entanglements thus appears to the author to be at most marginal compared to the initial and continuing entanglement of whales caused by vertical buoy lines. When the National Marine Fisheries Service (NMFS) was asked via subpoena to produce any extant records of great whales becoming initially entangled in ground-lines rather than in vertical lines, the agency responded to the court in writing that they "ha[d] no such records."[64]

Fishing gear, and particularly vertical buoy lines, constantly pose a significant risk to entangle great whales whenever the two meet in close encounters.[65] Regulations that are reasonable—and enforced—could almost entirely eliminate this threat.[66] Otherwise the consequences will be to continue to expose endangered great whales to risk of extinction because reproducing numbers and the gene pool are already so limited.[67]

This author believes NMFS resists regulating, banning, or requiring alternatives to conventional vertical buoy lines.[68] As noted *infra*, the author has observed a distinct aversion to requiring re-engineering of vertical lines to make them "whale-safe." Instead, NMFS chooses to issue a simple mandate for sinking ground-lines as a symbolic act to address entanglement.[69] Given the questionable magnitude of the entanglement risk posed by ground-lines, this token regulatory act can be characterized as a political feint in deference to the industry that side-

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[64] Subpoena issued in Strahan v. Holmes, 595 F. Supp. 2d 161 (D. Mass. 2009). When NMFS initially failed to comply, a contempt proceeding was brought by the plaintiff against it. After the court ordered its compliance, NMFS's attorney informed the court on the record that NMFS had no records of ground-line ever on its own initiating the entanglement of a great whale. It is also possible that most ground-line found entangled on whales comes from gill nets, not lobster gear.

[65] Johnson et al., *supra* note 36, at 644. "This analysis confirms that any line rising into the water column poses a significant entanglement risk for these two species." The author does also note, however, that groundline can also float up into the water column. *Id.* at 643.

[66] *See* Kraus et al., *supra* note 31, at 562.

[67] *See* Lippsett, *supra* note 19. The results are also horribly cruel in terms of animal welfare as these great mammals suffer serious injuries and long lingering painful deaths. *See* Moore et al., *supra* note 51.

[68] *See* Taking of Marine Mammals Incidental to Commercial Fishing Operations; Atlantic Large Whale Take Reduction Plan Regulations, 72 Fed. Reg. 57,104, 57,104 (Oct. 5, 2007) (covering only weak link or breakaway buoys, not vertical buoy lines) (to be codified at 50 C.F.R. §§ 229.2, 229.3, 635.69(a)(3), 648.264(a)(6)(i)).

[69] *See id.*

steps enforcement of the substantial commands of the Endangered Species Act (ESA).

### B. *Alternative Technologies and Commercial Fishing Practices That Reduce Risk of Entanglement*

Because feasible technology and methodology exist to substantially reduce—if not largely eliminate—the hazards of whale entanglement in vertical buoy lines, the official regulatory focus on ground-lines by NMFS appears to be politically driven. Effective regulation strategies would focus on whale-safe buoy lines and redesigning fishing seasons and zones to limit the time and placement of entangling gear.[70] A recent study comparing lobster fishing in the Canadian and American portions of the Gulf of Maine shows that a large reduction of fishing effort would greatly reduce the entanglement risk posed by the fishery while reducing the total lobster catch only trivially.[71] This also results in a substantial lessening of actual net cost per pound of catch.[72] The straightforward regulatory logic and simplicity of requiring whale-safe vertical lines, moreover, is obvious. Making vertical buoy lines significantly more whale-safe does not require sophisticated electronic trap-retrieval devices or remote-triggered buoy systems that pop up from the ocean floor. Stiffened, less-entangling ropes and other simple substantial improvements could be readily developed.[73] The failure of NMFS to require whale-safe ropes for commercial fishing gear is not based on a failure of available technology.

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[70] Kraus et al., *supra* note 31, at 562.

[71] *See* Ransom A. Myers et al., *Saving Endangered Whales at No Cost*, 17 Current Biology R10, R11 (2007). "If Maine restricted its fishing season to 6 months and reduced the number of traps by a factor of 10, the same amount of lobster could be landed, with greatly reduced risk to right whales and other species." *Id.*

[72] *Id.*

[73] Nonknottable rope designs have been developed by researchers at the Massachusetts Institute of Technology and could be quickly brought to commercial production if a regulatory mandate existed to create a market.

## II. The Current Government and Private Regulatory Paradigm for Protection and Conservation of Great Whales

### A. *The Federal and State Regulatory Scheme for Fixed Gear Fisheries*

#### 1. Regulation of Marine Commercial Fisheries in General

The marine fisheries regulatory systems adopted by both the federal government and coastal states share basic key features. State and local marine fisheries agencies (as opposed to inland fisheries agencies, which focus upon conservation and noncommercial utilization) are designed and established to regulate and promote the commercial marine fishing industry.[74] These agencies are mandated by statute to assist the private commercial fishing industry, and in practice seem demonstrably to have far less concern for serving public interests like animal welfare and conservation.[75] The fishing agencies usually are directed by a commission whose membership, by explicit statutory mandate, is dominated by members who are either commercial fishermen or are otherwise associated with the commercial fishing industry. The result of the private commercial orientation of these agencies is that the fishing industry essentially regulates itself. At the federal level, moreover, state marine fishing agencies play a major role on the commissions governing the federal fisheries regulatory scheme and the National Marine Fisheries Service (NMFS).[76] Environmental impact review laws have a tendency to limit the autonomy of these agencies as well as the fishing industry. In the case of state agencies, as a matter of political realities rather than by statutory exemption, regulation of marine fisheries is

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[74] *See* Fisheries Conservation and Management Act of 1976, 16 U.S.C. § 1801 (2006); Atlantic Coastal Fisheries Cooperative Management Act 16 U. S. C. § 5101(a) (2006).

[75] *See* 16 U. S. C. § 1801(a)(6): "A national program for the conservation and management of the fishery resources of the United States is necessary to prevent overfishing, to rebuild overfished stocks, to insure conservation, to facilitate long-term protection of essential fish habitats, and to realize the full potential of the Nation's fishery resources." These statutes show little concern for any adverse impact of fishing on the environment or any need to make fishing environmentally safe.

[76] Pat Murray, Coastal Conservation Association Vice President & Director of Conservation, Federal Fisheries Management 101 (Jan./Feb. 2008), http://www.joincca.org/TIDE/101.html. This "bottom up" state-federal regulation of coastal fisheries came from the need for state fisheries to attempt to minimize federal mandates on state fisheries. *See* Daniel B. Rodriguez, *The Role of Legal Innovation in Ecosystem Management: Perspectives from American Local Government Law*, 24 Ecology L.Q. 745, 749 (1997).

historically not subjected to the mandates of state environmental review laws.[77]

2. Federal Fishing Industry

NMFS is the federal fishing agency.[78] NMFS issues regulations to implement fisheries management plans and has enforcement authority in regard to fisheries regulations. It manages marine commercial fisheries principally under the terms of three federal statutes: (1) the Magnuson-Stevens Fisheries Management Conservation Act; (2) the Sustainable Fisheries Act; and (3) the Atlantic Coastal Fisheries Management Act.

The Magnuson-Stevens Fisheries Management Conservation Act (FMCA) regulates commercial fishing off the coast of the United States in the Urban Sea.[79] The FMCA is the core law that defines NMFS's purpose as an agency and lays out its duties.[80] The FMCA regulates the taking of fish populations or stocks within the Exclusive Economic Zone (EEZ) off the U.S. coast.[81] It does this by establishing regional Fisheries Management Councils (FMCs) to develop Fisheries Management Plans (FMPs) for specific commercial fisheries.[82] FMC members are required to be from state fishing agencies, the fishing industry, or regulated fishermen.[83] In 2007, Congress reauthorized the FMCA with modifications.[84]

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[77] A case in point is the historical refusal of the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA) to review the licensing of commercial fishing for its impact on the environment under the Massachusetts Environmental Protection Act (MEPA).

[78] Reorganization Plan No. 4 of 1970, 3 C.F.R. 1075 (1970), *reprinted as amended in* 5 U.S.C. app. at 648–50 (2006), *and in* 84 Stat. 2090–93 (1970). NMFS was established by Reorganization Plan No. 4 of 1970 which transferred the responsibilities of the former Department of Interior's Bureau of Commercial Fisheries to it. *Id.*

[79] *See* Fisheries Conservation and Management Act of 1976, Pub. L. No. 94-265, 90 Stat. 331 (codified as amended at 16 U.S.C. §§ 1801–1884, 1891–1891d (2006)).

[80] NOAA Fisheries Feature: Magnuson-Stevens Fishery Conservation and Management Act Reauthorized, http://www.nmfs.noaa.gov/msa2007/details.html (last visited Apr. 27, 2009).

[81] 16 U.S.C. § 1811(a). "As a steward, NOAA Fisheries Service conserves, protects, and manages *living marine resources* in a way that ensures their continuation as functioning components of marine ecosystems, affords economic opportunities, and enhances the quality of life for the American public." Nat'l Oceanic & Atmospheric Admin. Fisheries Serv., http://www.nmfs.noaa.gov (last visited Apr. 27, 2009) (emphasis added).

[82] *See* 16 U.S.C. §§ 1851–1853.

[83] *See* 16 U.S.C. § 1852(b)–(c).

[84] Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, Pub. L. No. 109–479, 120 Stat. 3575 (2007).

In 1995 Congress passed the Sustainable Fisheries Act (SFA)[85] establishing a mandate that marine fisheries be managed to ensure that they are sustainable and to assist in the recovery of depleted fisheries.[86] This Act is considered a part of the FMCA.[87]

The Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA)[88] establishes an Atlantic States Marine Fisheries Commission (ASMFC) in which each member state is represented by three commissioners along with a representative from NMFS.[89] The American lobster fishery is currently managed under the terms of a voluntary compact of fifteen Atlantic coastal states (from Maine to Florida) organized under NMFS federal oversight pursuant to the ACFCMA.[90] Currently, NMFS has agreed to let the ASMFC and its member coastal states develop a uniform fisheries management plan for the American lobster fishery for these coastal state waters and for federal waters as well.[91] NMFS then implements this plan under its federal management authority after a simple review.[92] Individual states also may issue complementary public laws beyond the agreed upon base regulations.[93] Gill nets, too, are a focus of the cooperative regulatory management by coastal states and NMFS pursuant to the ACFCMA, along with regulation of moving purse-seine techniques in modern otter trawl fishing.

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[85] Pub. L. No. 104–297, 110 Stat. 3559 (1996) (codified in scattered sections of 16 U.S.C.). *See generally* Nat'l Oceanic & Atmospheric Admin. Fisheries, Office of Sustainable Fisheries, Sustainable Fisheries Act, http://www.nmfs.noaa.gov/sfa/ (last visited Apr. 4, 2009) (providing information associated with the implementation of the Sustainable Fisheries Act).

[86] Nat'l Marine Fisheries Serv., U.S. Dep't of Commerce, Implementing the Sustainable Fisheries Act: Achievements from 1996 to the Present 2 (2003), *available at* http://www.nmfs.noaa.gov/sfa/SFA-Report-FINAL7_1.pdf.

[87] *See id.*

[88] Pub. L. No. 103-206, 107 Stat. 2447 (1993) (codified as amended at 16 U.S.C. §§ 5101–5108(2006)).

[89] 16 U.S.C. § 5102(3) (2006); Nat'l Oceanic & Atmospheric Admin. Fisheries, Office of Sustainable Fisheries, State-Federal Fisheries: The Atlantic Coastal Fisheries Cooperative Management Act, http://www.nmfs.noaa.gov/sfa/state_federal/State-Federal-WEB/acfcmafs.htm (last visited Apr. 27, 2009).

[90] 16 U.S.C. § 5101(4); Nat'l Oceanic & Atmospheric Admin. Fisheries, Office of Sustainable Fisheries, State-Federal Fisheries: Regulatory Activities, http://www.nmfs.noaa.gov/sfa/state_federal/regulatory_activities.htm (last visited Apr. 27, 2009).

[91] *See* 16 U.S.C. § 5104(a); Atlantic Coastal Fisheries Cooperative Management, 50 C.F.R. pt. 697 (2008); State-Federal Fisheries: The Atlantic Coastal Fisheries Cooperative Management Act, *supra* note 89.

[92] 16 U.S.C. § 5103(a); State-Federal Fisheries: The Atlantic Coastal Fisheries Cooperative Management Act, *supra* note 89.

[93] 50 C.F.R. § 697.3(c) (2008).

3. Coastal States Fishing Industry

Typical of state marine fisheries is the Massachusetts Division of Marine Fisheries (MDMF) that is overseen by the independent Massachusetts Marine Fisheries Advisory Commission (MMFAC).[94] The members of the MMFAC are appointed by the governor and must be commercial fishermen, sport fishermen, or members of the marine fisheries industry.[95] Interestingly, Massachusetts statutes include whales within the definition of "fish."[96] The MMFAC is vested with the sole authority to approve regulations proposed by the MDMF concerning the "manner of taking fish" and fishing gear itself.[97] This is thus a typical state arrangement by which the commercial fishing industry in effect regulates itself. The MMFAC is usually chaired by leaders of commercial fishing lobby groups.[98]

The failure of state fishing agencies to adequately protect the public interest has on occasion caused various ocean user groups to seek protection for marine wildlife from the impact of commercial fishing. In 1994, Florida sports fishermen successfully promoted a measure to ban gill nets in Florida through a ballot referendum initiative approved by the voters.[99] This led to a constitutional provision banning gill nets and other entangling nets from being used in Florida coastal waters, and was joined by similar bans in other states.[100] The Florida law was challenged in court and was eventually upheld by the Florida District Court of Appeal for the First District.[101]

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[94] Mass. Gen. Laws ch. 130, § 1B (2006); Mass. Div. of Marine Fisheries, Marine Fisheries Commission, http://www.mass.gov/dfwele/dmf/marinefisheriesnotices/mfcmeetings.htm#marincom (last visited Apr. 27, 2009).

[95] *See* Mass. Div. of Marine Fisheries, *supra* note 94.

[96] Mass. Gen. Laws ch. 130, § 1 (2006) (defining "[f]ish" as "any animal life inhabiting the ocean or its connecting waters including any crustacean or marine fish, whether free swimming or free moving, and any shellfish or sea worms, whether or not imbedded in the soil").

[97] Mass. Gen. Laws ch. 130, § 17A(1) (2006).

[98] The current MFAC Vice-Chairman is Bill Adler, Executive Director of the Massachusetts Lobstermen's Association. *See* Marine Fisheries Commission, *supra* note 94.

[99] *See* Alexandra M. Renard, *Will Florida's New Net Ban Sink or Swim?: Exploring the Constitutional Challenges to State Marine Fishery Restrictions*, 10 J. Land Use & Envtl. L. 273, 273–75 (1995).

[100] Fla. Const. art. X, § 16(b)(1) (stating "[n]o gill nets or other entangling nets shall be used in any Florida waters"); Renard, *supra* note 99, at 275 & n.7.

[101] Fla. Marine Fisheries Comm'n v. Pringle, 736 So. 2d 17, 23–24 (Fla. Dist. Ct. App. 1999).

4. Effects and Causes of the Current Regulatory Framework

The standard regulatory provisions affecting coastal fisheries focus in one form or other upon catch limitations.[102] Limitations of catch have long been criticized as so permissive that they have allowed the destruction of many commercial species.[103] Even where excessive catch rates clearly threaten the reproduction of future harvestable populations, short-term pressures from the commercial industry regularly override scientific warnings.[104]

The political forces behind commercial fishing come from a combination of an appealing public image and highly focused financial and lobbying efforts from the large commercial players. The characteristic political image typically is the small family fishing boat, and the need to save fishing families from economic disaster and harsh government regulation. The substantive political force comes from, and benefit accrues to, the large fishing companies that dominate the market. The result of the erosion of agency authority to conserve fisheries is that maximum sustainable yield has not been a possibility for decades.[105] In this author's opinion, if fishing agencies find it impracticable to enforce statutory mandates and adopt regulations directed at achieving maximum sustainable long-term harvests—which support the true long-term interests of the industry and society—it is understandable that they have low motivation to enforce federal and state regulatory structures for protecting great whales from adverse industry-caused impacts.

## B. *Whale Conservation Laws: Federal and State*

Starting with the Whaling Convention Act (WCA) of 1949, whales have been subject to conservation and management laws in the United States.[106] But it is important to note that these laws generally construed whales to be a "living marine resource" in terms applied to harvestable fish, and their conservation was intended at least originally to serve the

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[102] *See, e.g.*, 50 C.F.R. § 648.200–01 (2008).

[103] *See* Christopher Costello et al., *Can Catch Shares Prevent Fisheries Collapse?*, 321 SCIENCE 1678, 1678 (2008).

[104] *See id.*

[105] Maximum sustainable yield (MSY) is a management ideal and norm that on its terms defines a laudable sustainability objective: maintaining the maximum level of catch of a fish population in a year that can then be fully replaced by simple reproduction and growth each year. *See* 50 C.F.R. § 600.310(c)(1) (2008). Under current conditions fish populations cannot support anything approaching MSY.

[106] *See* JORDAN CURNUTT, ANIMALS AND THE LAW: A SOURCEBOOK 351 (2001) (discussing the International Convention for the Regulation of Whaling).

purpose of ensuring future supplies for commercial whale harvesting.[107] Even today the great whales are for all intents and purposes legally lumped together with fish. As noted *supra*, whales are defined as fish by Massachusetts statute and, like fish, are protected under fisheries' living resource rules.[108] The protection of great whales is thus assigned to fisheries agencies internally committed to supporting and encouraging the commercial catch, a classic problem of foxes guarding the chicken coop.

1. Whaling Convention Act

Protection for great whales was first specifically legislated in modern times by the International Convention for the Regulation of Whaling (1946), signed by all the whaling nations, establishing the International Whaling Commission (IWC).[109] The Whaling Convention Act (WCA) was adopted by Congress in 1949 to implement the treaty.[110] The original motivation for the IWC was utilitarian: to preserve whales for future commercial harvesting: for whaling.[111] The duality of intent—on one hand to "protect" the whales and on the other hand to ensure the opportunity for commercial harvest of whales—has often been cited as a problematic conflict in the managed exploitation of natural resources.[112] This purpose of management was the unabated practice of the IWC for the three decades following the WCA adoption.[113] Reflective of this, the Department of the Interior assigned management responsibilities under the WCA to the Bureau of Commercial Fisheries (BCF). As its name implied, the BCF was designed to encourage the commercial fishing industry, and did little or nothing to change its practices in order to meet mandates imposed on it to conserve threatened marine mammals.

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[107] *Id.* at 351–52 (discussing the International Convention for the Regulation of Whaling).

[108] *See* Mass. Gen. Laws ch. 130, § 1 (2006).

[109] International Convention for the Regulation of Whaling, Dec. 2, 1946, 62 Stat. 1716, 161 U.N.T.S. 72.

[110] The Whaling Convention Act of 1949, Pub. L. No. 81-676, 64 Stat. 421 (1950) (codified as amended at 16 U.S.C. §§ 916–916*l* (2006)).

[111] Andresen, *supra* note 26, at 109.

[112] *Id.* "The duality of purposes reflected in the 1946 Convention, conservation of the living resource and the 'development' of the industry that exploits it, resulted in a long history of decisions sacrificing the former objective for the attainment of the latter." Michael J. Bean, The Evolution of National Wildlife Law 263 (1983).

[113] *See* Andresen, *supra* note 111, at 109–10.

Predictably, whale populations continued to crash from over-exploitation.[114] In 1972, the United States signed on to the United Nations Conference on the Human Environment (the Stockholm Declaration) that called for a ten-year moratorium on hunting of great whales.[115] The IWC voted a ten-year moratorium on whaling into effect in 1982 to begin in 1986.[116] Japan refused to comply with the moratorium at first, but eventually brokered a deal with the United States to support the moratorium starting in 1988 in exchange for non-enforcement of potential sanctions imposed against its other fisheries.[117]

### 2. The Endangered Species Conservation Act of 1969

The great whales were first listed as endangered species pursuant to the Endangered Species Conservation Act of 1969.[118] This 1969 precursor to the ESA, however, had little or no enforceable federal protections for the species that were listed as endangered.[119]

### 3. Reorganization Plan No. 4 of 1970 and the Formation of the National Oceanic and Atmospheric Administration

Reorganization Plan No. 4 of 1970 (RPN-4) created the National Oceanic and Atmospheric Administration (NOAA).[120] It also transferred all duties and staff from the BCF—including whaling management responsibility—to the Commerce Department, which delegated it to NOAA.[121] NMFS was created as the agency within NOAA into which

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[114] *See id.*

[115] U.N. Conference on the Human Environment, June 5–16, 1972, *Declaration of the U.N. Conference on the Human Environment*, U.N. Doc A/CONF.48/14 (June 16, 1972).

[116] CURNUTT, *supra* note 106, at 352.

[117] *See* Japan Whaling Ass'n v. Cetacean Soc'y, 478 U.S. 221, 227–28 fn.1 (1986).

[118] Endangered Species Conservation Act of 1969, Pub. L. No. 91-135, § 1(c), 83 Stat. 275 (codified as amended in scattered sections of 16 U.S.C.) (granting to Secretary of the Interior the power to list endangered species); *see* List of Endangered Foreign Fish and Wildlife, 35 Fed. Reg. 18,319, 18,320 (Dec. 2, 1970) (codified as amended at 50 C.F.R. § 17.11(2008)).

[119] Sections 2 and 4 provide for listing of endangered species but do not provide for protective measures beyond habitat conservation. *See* Endangered Species Conservation Act of 1969 §§ 2, 4. Furthermore, the Act authorized penalties in the form of fines of up to $5000 or imprisonment for not more than one year. *See id.* § 4(b).

[120] Reorganization Plan No. 4 of 1970 § 2, 3 C.F.R. § 1075 (1966–1970), *reprinted as amended in* 5 U.S.C. app. at 648–50 (2006), *and in* 84 Stat. 2090 (1970).

[121] *See id.* at § 1(a), *reprinted in* 84 Stat. at 2090.

the former BCF was folded.[122] The current core duty of NMFS is to promote, license, and regulate commercial fishing under the Fisheries Management and Conservation Act mandated by law to strive to obtain Maximum Sustainable Yields (MSY) of harvested fish.[123]

There was no mandate under RPN-4 to assign management authority for whales to NMFS. RPN-4 only directed that BCF duties were to be placed with the broad umbrella agency, NOAA, and not specifically to the fishing agency, NMFS.[124] NOAA was and remains free to assign the responsibility for conserving and protecting great whales to any of its sub-agencies. This author believes responsibility for whale conservation could have been assigned to far better alternate agencies, like NOAA's National Ocean Service. The decision to place whales with NMFS reflects the concept by which whales are construed as "fish" and "living marine resources" under federal law. Even though this transfer was made before the adoption of the Marine Mammal Protection Act (MMPA)[125] and the Endangered Species Act (ESA),[126] it defined the subsequent core status of whales under federal law as that of exploitable resources even under the MMPA and ESA.

4. The Marine Mammal Protection Act of 1972

The 1940s regulatory approach—justifying conservation measures for whales in order to enable a sustained future commercial harvest of whales—was similarly echoed in a subsequent major piece of statutory protection for whales, the Marine Mammal Protection Act of 1972 (MMPA).[127] The MMPA declared a moratorium on the harvesting of marine mammals in order to build up their remaining depleted populations.[128] This moratorium was to be enforced within the nation's 200-mile EEZ.[129] The text of the MMPA expresses concerns about the harming of marine mammals by the commercial fishing industry, but its provisions are quite lenient toward fishermen and explicitly limit the

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[122] John A. Guinan & Ralph E. Curtis, Nat'l Oceanic & Atmospheric Admin., A Century of Conservation (Apr. 1971), *available at* http://www.nefsc.noaa.gov/history/stories/century.html.

[123] *See id.*; Nat'l Oceanic & Atmospheric Admin., About National Marine Fisheries Service, http://www.nmfs.noaa.gov/aboutus.htm (last visited Apr. 1, 2009).

[124] *See* Reorganization Plan No. 4 of 1970, at § 1(d), *reprinted in* 84 Stat. at 2090.

[125] 16 U.S.C. §§ 1361–1423h (2006).

[126] 16 U.S.C. §§ 1531–1544 (2006).

[127] *See* 16 U.S.C. § 1361.

[128] *See id.* § 1371.

[129] *Id.* § 1362(15)(B).

protection of whales from incidental takings from commercial fishing.[130]

The MMPA designated NOAA as its defined oversight agency, and NOAA assigned this responsibility to NMFS, perpetuating the conflicted status of whales.[131] American fishermen generally do not hunt whales or other marine mammals, but do recognize MMPA protections as a serious potential limitation upon commercial fishing.[132] Minimizing the MMPA's constraints on commercial fishing appears to have encouraged a de facto operating policy of NMFS to treat collateral entanglement of great whales as a problem, but not as an object of enforced prohibitions under the MMPA.[133]

Sections 117 and 118 of the MMPA's 1994 amendments adopted a detailed regime for dealing with the problem of marine mammal entanglement and entrapment by commercial fishing practices.[134] They set as a goal that NMFS eliminate the entanglement problem by April 2001.[135] Section 117 of the MMPA requires that NMFS annually assess and produce a stock assessment report (SAR) on known incidents of killings and serious injury to specific populations of marine mammals from entanglement.[136] Section 118 requires that NMFS publish an annual list of fisheries (LOF) categorizing fisheries that cause entanglements into one of three named categories based on the incidents of killing and serious injury (IKSI) inflicted on a marine mammal popula-

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[130] *See id.* § 1371; *see also* Eugene H. Buck, CRS Report for Congress: Marine Mammal Protection Act Amendments of 1994, 94-751 ENR (1994), *available at* http://ncseonline.org/NLE/CRSreports/Biodiversity/biodv-11.cfm (implying that the 1994 Amendments to the to the MMPA exempt commercial fishermen from the purview of the statute by implicitly characterizing fishing gear entanglements as incidental takings).

[131] *See* 16 U.S.C. § 1362(12)(A)(i).

[132] *See id.* § 1371(a)(2) (noting that permits can be obtained for incidental takings of marine mammals in the course of commercial fishing); *see also* Philippe Sands, Principles of International Environmental Law 954 (2d ed. 2003) (highlighting the impact that the MMPA has on the tuna fishing industry).

[133] *See* 16 U.S.C. § 1371(a)(2) (indicating incidental takings can be permitted under section 1374 of the Act). *But see* George A. Feldhammer et al., Wild Mammals of North America: Biology, Management, and Conservation 442 (2d ed. 2003) (noting that the NMFS is under pressure to reduce takings of whales due to ship strikes and entanglements and thus has proposed regulations known as recovery plans to ensure the survival and success of whales).

[134] *See* Marine Mammal Protection Act Amendments of 1994, Pub. L. No 103-238, secs. 10–11, 108 Stat. 532, 543–57 (codified as amended at 16 U.S.C. §§ 1386–1387) (adding sections 117 and 118 to the MMPA).

[135] *See* 16 U.S.C. § 1387(b)(1).

[136] *See id.* § 1386.

tion by entanglements.[137] This category scheme also incorporates Take Reduction Plans (TRP) that have the goal of reducing incidental killings and serious injuries below the potential biological removal (PBR) level set for the stock pursuant to Section 117.[138] Fixed gear fisheries in the northeastern U.S. have been designated as Category I fisheries and thus the highest risk of IKSI to great whales.[139] To assist NMFS, section 118 allows the Secretary of Commerce, acting through a relevant office, to designate a Take Reduction Team (TRT) as an advisory group assisting in the preparation of a TRP to specify how reduction in entanglements shall be achieved.[140] Emergency regulations to implement the TRP were to be promulgated as soon as feasible.[141]

This author believes the 1994 MMPA amendments eliminated incentives for the commercial fishing industry to come up with ways to eliminate bycatch of whales on its own, instead passing the political burden of the bycatch problem to NMFS. In place of the lost prohibitions, NMFS set out the detailed regime, described *supra*, aimed at reducing serious entanglements to near zero by April 2001. Obviously, NMFS has failed to meet this mandate, as whale entanglements did not stop in 2001, and have at times exceeded 2001 levels.[142] Unsurprisingly, there is a correlation between assigning sole responsibility to the NMFS for whale entanglements and a number of takes that exceeds the PBR.[143]

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[137] *See id.* § 1387(d)(4); *see also* Authorization for Commercial Fisheries Under the Marine Mammal Protection Act of 1972, 50 C.F.R. § 229.2 (2008) (defining the categories of fisheries under the Act).

[138] *See* § 1386(f); 50 C.F.R. § 229.2. The potential biological removal level is defined in the Code of Federal Regulations as "the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population." 50 C.F.R. § 229.2. Further, "[t]he potential biological removal level is the product of the following factors: (1) The minimum population estimate of the stock; (2) One-half the maximum theoretical or estimated net productivity rate of the stock at a small population size; and (3) A recovery factor of between 0.1 and 1.0." *Id.*

[139] *See* List of Fisheries for 2009, 73 Fed. Reg. 73,032, 73,066 (Dec. 1, 2008) (to be codified at 50 C.F.R. pt. 229).

[140] *See* 16 U.S.C. § 1387(f).

[141] 50 C.F.R. § 229.9(a)(2).

[142] *See* Misty Nelson et al., Northeast Fisheries Sci. Ctr. Reference Doc. 07-05, Mortality and Serious Injury Determinations for Baleen Whale Stocks Along the United States Eastern Seaboard and Adjacent Canadian Maritimes, 2001–2005, 7 tbl.1 (2007), *available at* http://www.nefsc.noaa.gov/nefsc/publications/crd/crd0705/crd0705.pdf.

[143] *See* Andrew J. Read & Paul R. Wade, *Review: Status of Marine Mammals in the United States*, 14 Conservation Biology 929, 931–33 (2000).

5. The Pelly Amendment to the Fishermen's Protective Act of 1967 and the 1979 Packwood Amendment to the Fisheries Management and Conservation Act

These acts, often referred to together as "Pelly-Packwood," imposed a "restriction on importation of fishery or wildlife products from countries which violate international fishery or endangered or threatened species programs."[144] The Supreme Court ruling in *Japanese Whaling Association v. American Cetacean Society*, however, allowed the executive branch broad discretion in deciding whether to trigger such trade restrictions, further undercutting citizen attempts to compel the imposition of authorized sanctions.[145]

6. The Marine Mammal Commission

The Marine Mammal Commission (MMC) is an independent federal commission established by statute[146] to be the federal government's main advisor on marine mammal issues, and in the author's opinion is the agency that should be assigned the federal management role for great whales in any future redesign of whale conservation policy. The MMC's enabling statute requires that its commissioners must be persons "who are not in a position to profit from the taking of marine mammals," recognizing the inherent compromising influence of vested interests in the field.[147] The MMC has compiled an impressive record in assuming leadership for government action on the conservation of marine mammals, having recommended significant conservation actions for marine mammals, but it has been delegated no substantive regulatory powers.[148]

7. The Endangered Species Act of 1973

The Endangered Species Act of 1973 (ESA) replaced and built significantly on Congress's original endangered species legislation.[149] Two

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[144] 22 U.S.C. § 1978 (2006).

[145] *See* 478 U.S. 221, 231–41 (1986) (noting that as long as the Secretary's interpretation and application of the Pelly-Packwood Amendments were reasonable, they would receive deference from the courts).

[146] Marine Mammal Commission, 16 U.S.C. §§ 1401–1407 (2006).

[147] *See id.* § 1401(b)(1).

[148] *See id.* § 1402(a); *see also* Marine Mammal Commission, Annual Reports, http://www.mmc.gov/reports/annual/ (last visited Apr. 27, 2009).

[149] *See* U.S. Fish and Wildlife Service, Endangered Species Program, History and Evolution of the Endangered Species Act of 1973 (2008), http://www.fws.gov/endangered/esasum.html (last visited Apr. 27, 2009).

improvements to the original 1966 legislation and the 1969 amendments were sections 7 and 9 of the ESA.[150] Section 7 of the Act provides that, absent an exemption from the Secretary of the Interior, all "Federal agenc[ies] shall . . . insure that any [authorized] action . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species . . . ."[151] Further, section 9 of the ESA "applied broad 'take' prohibitions to all endangered animal species and allowed the prohibitions to apply to threatened animal species by special regulation."[152]

There are serious problems with the functionality of the improved ESA, however, in that it does not effectively establish an agency to oversee implementation of section 7 reviews, to enforce section 9 prohibitions, and otherwise oversee compliance by other government agencies with mandatory and nondiscretionary ESA duties. These statutory functions are largely left to the vagaries of citizen enforcement.[153]

Section 9 also suffers from not including an explicitly stated prohibition against individuals conducting "activities" that take endangered wildlife, as well as on such activities themselves.[154] Based on the wording of the ESA text and existing case law, section 9 prohibitions clearly apply when a person engages in an activity that actually causes a prohibited taking.[155] Unfortunately, section 9 does not prohibit a fisherman's actual deployment of types of fishing gear known to entangle whales (for example, fixed gear) in the absence of a specific entanglement.[156] The current need under section 9 jurisprudence to prove that each person out of thousands doing the same thing will "actually" on his own kill an animal—whether it be a lumberman cutting trees where endangered birds live or a fisherman using vertical buoy lines in Cape Cod Bay—in order to enforce section 9 prohibitions against him personally is enough to block the effective injunctive protection of great whales at the present time.[157]

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[150] *See id.*

[151] 16 U.S.C. § 1536(a)(2) (2006).

[152] U.S. Fish and Wildlife Service, *supra* note 149; *see* 16 U.S.C. § 1538(a), (g).

[153] *See* 16 U.S.C. § 1540(g).

[154] *See id.* § 1538.

[155] *See id.*

[156] *See id.*; *see also* Am. Bald Eagle v. Bhatti, 9 F.3d 163, 165–67 (1st Cir. 1993) (indicating that takings must be intentional or cause actual harm); 50 C.F.R. § 17.3 (2007) (defining the term "taking" in the context of the ESA).

[157] *See* 16 U.S.C. § 1538; Am. Bald Eagle, 9 F.3d at 163; 50 C.F.R. § 17.3.

8. International Convention for the Prevention of Pollution from Ships: MARPOL 73/78.

The MARPOL Convention was incorporated into U.S. law by the federal Act to Prevent Pollution from Ships (APPS).[158] The statute defined derelict fishing gear as "pollution" and bans it.[159]

9. State Conservation Programs for Whales

Currently, there is a lack of cooperation between states and the federal government regarding endangered species and state participation generally.[160] Some states have adopted their own endangered species acts.[161] However, such state laws can be preempted by the federal ESA if they are determined to be more lax than the federal law.[162] States, like the federal government, often divide wildlife agencies into land-based and marine-based agencies. State marine fisheries agencies historically focused only on commercial fishing, disregarding protections for whales, marine mammals, and sea birds as a job for the land-based wildlife state agencies assigned the role of protecting all state wildlife as protected species. However—perhaps because entanglements of endangered marine mammals now are recognized as posing an increasing potential for limitations upon commercial fishing—there is a current move for state marine fishing agencies to take over endangered species jurisdiction as applied to endangered marine wildlife, contradicting the terms of relevant state statutes.[163]

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[158] Act to Prevent Pollution from Ships, 33 U.S.C. §§ 1901–1915 (2006); *see also* Bruce S. Manheim, *Annex V of the MARPOL Convention: Will It Stop Marine Plastic Pollution?*, 1 Geo. Int'l Envtl. L. Rev. 71, 72 (1988).

[159] *See* Comm. on the Effectiveness of Int'l and Nat'l Measures to Prevent and Reduce Marine Debris and Its Impacts, Nat'l Research Council of the Nat'l Acads., Tackling Marine Debris in the 21st Century 90 (2008).

[160] *See* Robert L. Fischman & Jaelith Hall-Rivera, *A Lesson for Conservation from Pollution Control Law: Cooperative Federalism for Recovery Under the Endangered Species Act*, 27 Colum. J. Envtl. L. 45, 78–81 (2002); James M. Taylor, *Governors Call for Endangered Species Act Reform*, Env't & Climate News, May 1, 2004, http://www.heartland.org/policybot/results/14867/Governors_Call_for_Endangered_Species_Act_Reform.html.

[161] *See, e.g.*, The Massachusetts Endangered Species Act, Mass. Gen. Laws ch. 131A (2006).

[162] *See* Fischman & Hall-Rivera, *supra* note 160, at 80.

[163] In 1993 the MDMF forced the Massachusetts Division of Fish and Wildlife, the proper endangered species agency, to sign a memorandum of understanding ceding management and lead agency responsibility for whales in state waters to it. The MDFW and its Natural Heritage and Endangered Species Program (NHESP) are imbued by the Massachusetts Endangered Species Act (MESA) with responsibility for all state protected endangered species—including whales. Because of the 1993 MOU, great whales in Massachusetts

### C. *The Entanglement Problem—Regulatory Efforts by Fishing Agencies*

Prior to the 1994 amendments to the MMPA, NMFS and state marine fishing agencies largely ignored the problem of the entanglement of great whales in fishing gear. To a substantial extent, NMFS also tended to ignore the ESA in regards to endangered great whales until lawsuits coerced it to do otherwise.[164] At present, there is no currently active NMFS-appointed ESA recovery team for any endangered species—including the great whale species—and no significantly funded recovery program, except for the North Atlantic right whale recovery program. NMFS prefers to address protection for great whales under the more lenient terms of the MMPA, which treats marine mammals as a "living resource" to be managed like fish stocks, is industry-tolerant, does not directly prohibit entanglement of great whales, and does not allow citizen enforcement of its rules.[165]

#### 1. Federal Regulation of Fisheries to Reduce Entanglement

Federal and state regulatory attention to the great whale entanglement problem of can be attributed to two linked elements: (1) the passage of the 1994 amendments to the MMPA, which at least adverted to the problem; and (2) the commencement of two citizen lawsuits: one against the United States Coast Guard and NMFS—*Strahan v. Linnon*[166]—and the other against the Massachusetts Division of Marine Fisheries (MDMF)—*Strahan v. Coxe*.[167] The lawsuits were precipitated by the failure of NMFS to take appropriate actions to assemble the required MMPA Take Reduction Team (TRT) for the great whales or

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coastal waters were effectively removed from any protection by MESA. The author is aware of no provision of the MESA or law that supports the 1993 MOU. It remains in effect to the present day.

[164] The list of private action ESA and MMPA enforcement cases for whales is large. *See, e.g.*, Defenders of Wildlife v. Gutierrez, 532 F.3d 913 (D.C. Cir. 2008); Natural Res. Def. Council, Inc. v. Winter, 518 F.3d 658 (9th Cir. 2008); Vill. of False Pass v. Clark, 733 F.2d 605 (9th Cir. 1984); Ocean Mammal Inst. v. Gates, 546 F. Supp. 2d 960 (D. Haw. 2008); Natural Res. Def. Council, Inc. v. Evans, 232 F. Supp. 2d 1003 (N.D. Cal. 2002).

[165] Unlike most environmental statutes, the MMPA does not include a citizen standing enforcement provision. 16 U.S.C. § 1377 (stating "[e]xcept as otherwise provided in this subchapter, the Secretary shall enforce the provisions of this subchapter"); Strahan v. Coxe, 127 F.3d 155, 160 (1st Cir. 1997).

[166] 967 F. Supp. 581 (D. Mass. 1997); *see also* Amber Shell Ward, Casenote, Strahan v. Linnon*: A Missed Opportunity for Testing the Use of Section 7(a)(1) as an Action-Forcing Provision*, 4 Ocean & Coastal L.J. 311 (1999).

[167] Strahan v. Coxe, 127 F.3d 155, 160 (1st Cir. 1997); *see also* Susan Gray, Recent Development, Strahan v. Coxe*: Massachusetts's Issuance of Commercial Fishing Permits Constitutes a Violation of the Endangered Species Act*, 6 U. Balt. J. Envtl. L. 260 (1997–1998).

make the necessary formal List of Fisheries (LOF) determinations required by the MMPA's 1994 amendments.

*Linnon* addressed incidents of Coast Guard boats killing and injuring right whales,[168] and prompted NMFS to establish a Large Whale TRT.[169] The suit also prompted NMFS to agree to classify inshore and offshore lobster fisheries as Category I in its first published LOF.[170] The *Linnon* suit also led NMFS to adopt of a rule requiring a 500-yard distance separation between whales and boats.[171]

In 1999, NMFS adopted its first version of its Atlantic Large Whale Take Reduction Plan (ALWTRP) for the great whales in the United States Urban Sea of the North Atlantic.[172] The 1999 ALWTRP stated its long-term goal was to reduce entanglement-related injuries and mortalities to right, fin, humpback, sei, and minke whales.[173] However, in practice, NMFS focused its efforts almost exclusively on the right whale, in effect creating, in this author's opinion, a non-statutory requirement that a species be facing imminent extinction in order to be the beneficiary of any government efforts to stop their killing in fishing gear or by ship strikes.[174]

Further entanglements after the publication of the 1999 ALWTRP prompted NMFS to mandate gear modifications, such as the use of weak-link buoy lines, as well as seasonal area restrictions.[175] These measures subsequently proved to be ineffective.[176] This author maintains that the required break-away link technology had never been tested in the field and the required seasonal area restrictions also offered no proven track record for anyone to expect it to work. Other vertical buoy line mitigation proposals calling for electronically re-

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[168] 967 F. Supp. at 589.

[169] *Id.*

[170] *Id.*

[171] *Id.*; North Atlantic Right Whale Protection, 62 Fed. Reg. 6729 (Feb. 13, 1997) (codified at 50 C.F.R. pts. 217, 222).

[172] *See* Taking of Marine Mammals Incidental to Commercial Fishing Operations; Atlantic Large Whale Take Reduction Plan Regulations, 64 Fed. Reg. 7529 (Feb. 16, 1999) (codified at 50 C.F.R. pt. 229).

[173] *Id.* at 7531.

[174] For example, the 1999 ALWTRP only requires gear marking of lobster and gillnet gear in "right whale critical habitat, in the southeast observer area and on Stellwagen Bank and Jeffreys Ledge in the Gulf of Maine." *Id.* at 7533.

[175] Atlantic Large Whale Take Reduction Plan Regulations, 65 Fed. Reg. 80,368, 80,368, 80,374–75 (Dec. 21, 2001) (codified at 50 C.F.R. pt. 229).

[176] The entanglement of a right whale in July 2001 in gear with the "weak link" modifications spurred NMFS to propose further alterations. Atlantic Large Whale Take Reduction Plan Regulations, 66 Fed. Reg. 49,896, 49,899 (Oct. 1, 2001).

leased buoy assemblies on the sea floor have yet to go beyond the wishful-thinking phase.[177]

In its 2007 amendment to its ALWTRP,[178] NMFS did not explore other practical alternative approaches to resolving the vertical buoy line threat—stiffened vertical lines that cannot entangle, or substantial reduction in numbers or locations of deployment of fishing gear sets that would mitigate the threat.[179] Instead, NMFS adopted a more lenient Massachusetts-type approach, directing that licensed fisheries use sinking ground-line as the sole means to reduce entanglement risk.[180] NMFS also abandoned a useful previous requirement—the Dynamic Area Management (DAM) and Seasonal Area Management (SAM) policies[181] that limited placement of fixed gear near some of the places where right whales are known to aggregate. The sole justification for the 2007 ALWTRP sinking ground-line requirement, beyond its simplicity of adoption, was a theory devoid of empirical evidence for its support—that nonsinking ground-line is the most significant source of right whale entanglement. NMFS asserted, despite a lack of evidence, that requiring widespread use of sinking ground-line would substantially reduce the threat to Right Whales of entanglement by lobster pot gear sufficiently to comply with the MMPA and ESA. The 2007 ALWTRP stated it would

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[177] Pop-up buoys are not commercially available and exist only as unproven experimental technology.

[178] Atlantic Large Whale Take Reduction Plan Regulations, 72 Fed. Reg. 57,104, 57,105–06 (Oct. 5, 2007) (to be codified at 50 C.F.R. pts. 229, 635, 648). The 2007 amendment to the ALWTRP was advanced because of the continuing killing and injuring of right whales under the regime of the 2005 ALWTRP in Fixed Gear. *See id.* at 57,104.

[179] *See id.* at 57,106 (only requiring weak links on buoy lines).

[180] *See id.*

[181] *Id.* at 57,105–06. Dynamic Area Management (DAM) is a management strategy to declare an emergency zone around a recent aggregation of right whales and to impose for a stated temporary period of time in the declared DAM area further restrictions on fixed fishing gear. Atlantic Large Whale Take Reduction Plan Regulations, 67 Fed. Reg. 1133, 1134–35 (Jan. 9, 2002). *See generally* Phillip J. Clapham & Richard M. Pace, Northeast Fisheries Sci. Ctr. Reference Doc. 01-06, Defining Triggers for Temporary Area Closures to Protect Right Whales from Entanglements: Issues and Options (2001) (discussing triggers for DAM). Seasonal Area Management (SAM) is a management strategy to declare a seasonal zone around areas where aggregation of right whales are seasonally expected, and to impose for a stated period of time each year further restrictions on fixed fishing gear in the SAM area. Atlantic Large Whale Take Reduction Plan Regulations, 67 Fed. Reg. 1142, 1150 (Jan. 9, 2002); *see* Richard L. Merrick et al., Northeast Fisheries Sci. Ctr. Reference Doc. 01-14, Identification of Seasonal Area Management Zones for North Atlantic Right Whale Conservation, at v (2001).

postpone consideration of the proven threat posed by vertical buoy lines to an indefinite "future date."[182]

NMFS's current de facto policy of refusing to enforce ESA section 9 prohibitions to prevent entanglements of great whales practically discourages the innovation and adoption of whale-safe fishing technology. NMFS has also chosen to oppose private enforcement actions against the industry and to assist fishermen in winning these lawsuits.[183] Despite the large number of incidents where whales have been injured or killed by vertical buoy lines and the fact that in many entanglement events the removed gear had tags on it identifying the owner, NMFS has never prosecuted a fisherman for an entanglement of a great whale under the ESA or MMPA. In 1997, the First Circuit Court of Appeals held in *Strahan v. Coxe* that entanglements are prohibited ESA takings.[184] In response, however, NMFS adopted a policy not to enforce the section 9 take prohibitions, instead treating whale entanglement as a regulatory problem to be handled under the agency's commercial fishing regulatory program. In so doing, NMFS's refusal to prosecute any fisherman whose fishing gear entangles endangered whales applies even when fishermen explicitly acknowledge that their gear entangled a specific whale.[185] The author concludes that by its avoidance of prose-

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[182] Atlantic Large Whale Take Reduction Plan Regulations, 72 Fed. Reg. 57,104, 57,117 (Oct. 5, 2007) (to be codified at 50 C.F.R. pts. 229, 635, 648) ("[T]he DEIS includes a discussion of vertical lines. Specifically, the DEIS notes that further risk reduction to address risk associated with vertical line will occur through a future rulemaking action due to the need for additional information and discussions to develop comprehensive and effective management measures.").

[183] NMFS refused to comply with—and sought to quash—all subpoenas that the author served on it to reveal the names of commercial fishermen whose fishing gear entangled a great whale. The Center for Coastal Studies—who is contracted to perform great whale disentanglement—also refuses to reveal the identity of the fishermen who own the fishing gear that it removes from entangled great whales.

[184] *See* Strahan v. Coxe, 939 F. Supp. 963, 984 (D. Mass. 1996); *see also* Strahan v. Holmes, No. 07-10359-NMG, slip op. at 7 (D. Mass. filed Jan. 30, 2009).

> Although the whale . . . was later disentangled from the gear stuck in its baleen, it was "taken captive" by Holmes's gear for at least some period of time. . . . Therefore, the Court concludes that Holmes violated Section 9 of the ESA when the humpback whale became entangled, and hence "taken," in his lobster gear. The fact that the taking was accidental is irrelevant.

*Id. See also* Greenpeace Found. v. Mineta, 122 F. Supp. 2d 1123, 1136 (D. Haw. 2000) (finding accidental takes of monk seals to be takes, nonetheless).

[185] For example, attorney Deirdre Casey from the civil enforcement section of NOAA's Office of General Counsel for Enforcement and Litigation (GCEL) in Gloucester, MA stated in 2008 that fishermen should not be prosecuted for entangling whales because they are under license by NMFS and a whale entanglement is incidental to NMFS's licensing

cutions, NMFS has simply chosen to ignore the ESA statutory prohibitions and its statutory responsibilities to enforce them.

NMFS has a specialized ESA office distinct from its MMPA office.[186] NMFS, however, removed great whales from the jurisdiction of its internal ESA enforcement division and placed them exclusively under the jurisdiction of the office vested with the more lenient requirements of the MMPA, which refuses to prosecute fisherman under ESA section 9 for entangling great whales, or to require ESA compliance by state licensing agencies. The court in *Coxe* required Massachusetts to apply to NMFS for an incidental take permit (ITP) for the right whale.[187] NMFS, however, has refused to process the resultant application and has yet to ask any state marine fishing agency to apply for an ITP for whales under section 10 of the ESA to manage fisheries in compliance with section 9's take prohibitions.

A recent example of such agency avoidance is NMFS's refusal to prosecute a fisherman who admitted to NMFS employees that he owned and had placed the fishing gear removed from an entangled humpback whale in August, 2006.[188] The removed gear had his name and permit number on it. NMFS investigators declined, however, to refer the fisherman and the entanglement incident to its civil or criminal enforcement offices for consideration of possible prosecution and

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and regulating of their fishing. Telephone Interview with Deirdre Casey, Attorney in Office of General Counsel for Enforcement and Litigation, NOAA (Dec. 8, 2008).

[186] *See* Office of Protected Fisheries, National Marine Fisheries Service, About the Office of Protected Fisheries, http://www.nmfs.noaa.gov/pr/about (last visited Apr. 27, 2009). Sea turtles, for example, are handled by its ESA office, which has actively applied section 9 against a state fishery agency regarding turtle entanglement in state-licensed fishing gear. NMFS has issued an ESA section 10 incidental take permit—NMFS ITP #1325—to the state of North Carolina Division of Marine Fisheries for the entanglement of endangered species of sea turtles in the fishing trawls it licenses and regulates. *See* Issuance of Permits #1325 and 1348, 66 Fed. Reg. 51,023 (Oct. 5, 2001). As this article was going to press, the office of the U.S. Attorney in Boston brought criminal indictments for violating the MMPA against commercial gillnetters for entangling humpback whales in two separate incidents. *See* Complaint at 4–6, United States v. Eldridge, No. 09-10059 (D. Mass., Mar. 9, 2009); Complaint at 3–5, United States v. Jacques, No. 09-10066 (D. Mass., Mar. 11, 2009). These are the first such governmental prosecutions of fishermen under either the ESA or the MMPA in the Northeast, and may be unprecedented nationally as well.

[187] *See* Strahan v. Coxe, 127 F.3d 155, 158 (1st Cir. 1997).

[188] The author is the citizen advocate bringing the suit in question. *See* Strahan v. Holmes, 595 F. Supp. 2d 161 (D. Mass. 2009). On August 2, 2006, the entangled humpback whale was sighted in Cape Cod Bay off the Massachusetts coast. A disentanglement effort was commenced by an NGO—the Center for Coastal Studies—contracted by NMFS and the state fishing agency to do this work. Vertical buoy line and a single attached lobster pot were removed from the whale. *Id.* at 162–63.

assessment of a civil fine.[189] NMFS also attempted to keep the name of the fisherman secret, which would effectively prevent citizen enforcement under the ESA citizen suit provision. When NMFS was subpoenaed to produce the records of this entanglement,[190] it refused to produce any document with the name or permit number of the fisherman on it. On photographs of the entangling fishing gear supplied pursuant to subpoena, NMFS redacted the permit number to prevent identification. Eventually, a federal judge ordered NMFS under threat of contempt to supply nonredacted photos and the missing documents, and the withheld information was released.[191] While this entanglement was the subject of an ESA citizen enforcement suit, the federal court acknowledged that the entanglement violated the law, but refused to issue an order to prevent future such entanglements of whales.[192]

NMFS has also failed to initiate any specific program to eliminate the risk of whale entanglements. Over the years, NMFS has undertaken only limited efforts to assess or encourage scientific development of nonentangling fishing gear, and funding has generally been awarded to research unlikely to lead to substantial changes in established industry practices. NMFS has in practice declined to impose restraints upon commercial fishing to meet the MMPA's 1994 amendments' 2001 goal of zero risk of death or serious injury to great whales from fishing gear. It has declined to state when it may actually issue a zero-risk standard.

Great whale entanglement is in effect treated by NMFS as a problem of bycatch—the incidental catch of under-sized fish or species of fish neither intended nor licensed to be caught.[193] NMFS applies its

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[189] Complaint at 22, Strahan v. Holmes, 595 F. Supp. 2d 161 (D. Mass. 2009) (No. 07-cv-10359-NMG).

[190] The subpoena was issued pursuant to an ongoing ESA enforcement action in the U.S. District Court in Boston, MA against the Massachusetts state marine fishing agency. *See* Strahan v. Pritchard, 473 F. Supp. 2d 230, 237 (D. Mass. 2007).

[191] The fisherman subsequently maintained that the fishing gear was not placed within the 3-mile boundary of Massachusetts's state jurisdiction, despite the disentanglement occurring within its jurisdictional boundary. *See id.* The "not in state waters" claim was then used by the court to find that the August 2006 entanglement could not be used by the plaintiff to prove that Massachusetts's licensing of lobster pot fishing causes whale entanglements in violation of the ESA. *See id.* at 237–38.

[192] Strahan v. Holmes, No. 07-10359-NMG, slip op. at 8–10 (D. Mass. filed Jan. 30, 2009).

[193] *See* NOAA Fisheries Feature: What is Bycatch?, http://www.nmfs.noaa.gov/by_catch/bycatch_whatis.htm (last visited Apr. 27, 2009). There are significant efforts underway to reduce bycatch of all types. *See id.*

bycatch policy—in general, a "sustainable" bycatch is tolerated[194]—to great whales as it would to fish.[195]

The federal courts for their part have held that NMFS's FMCA regulations cannot be directly challenged under the Administrative Procedure Act for violations of MMPA and ESA mandatory duties, only under the citizen suit provision of the FMCA. Violations of MMPA and ESA duties thus at best result in collateral review. Federal courts to date will not enjoin federal fisheries regulations for failure to comply with the MMPA or ESA.[196]

NMFS has no internal research and engineering program to develop whale-safe fishing gear. It has funded several research projects by grants from the National Fish and Wildlife Fund, but this money has primarily gone to amateur inventors for attenuated ideas.[197] Grant money is directed to proposals recommended for approval by commercial fishermen.[198] The MDMF Right Whale Conservation Program is funded by NMFS through the ESA section 6 cooperative agreement program with state governments.[199] NMFS does not engage in formal and directed engineering initiatives to produce whale-safe fishing gear. It does not fund dedicated university or corporate engineering projects to make fishing gear whale-safe. Absent enforcement of ESA section 9 prohibitions against fishermen whose gear entangles great whales, and absent significant state or federal funding of engineering solutions to

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[194] *See* Sustainable Fisheries Act, 16 U.S.C. §§ 1802(5), 1851(a)(9) (2006).

[195] *See* 16 U.S.C. § 1387 (2006) (outlining the bycatch policy as it pertains to marine mammals); 16 U.S.C. § 1802(2) (defining "bycatch" to pertain to "fish"); 16 U.S.C. § 1802(12) (defining "fish" to be "all . . . forms of marine animal and plant life other than marine mammals").

[196] *See, e.g.*, Turtle Island Restoration Network v. U.S. Dep't of Commerce, 438 F.3d 937, 946 (9th Cir. 2006) (citing Blue Water Fishermen's Ass'n v. Nat'l Marine Fisheries Serv., 158 F. Supp. 2d 118, 121–22 (D. Mass. 2001)). "[T]he NMFS implemented the rule pursuant to its authority over FMPs under the Magnuson-Stevens Act, *not the Endangered Species Act*. . . . [C]ouching the action in different statutory language 'is not a hook which can remove the prohibitions of the Magnuson-Stevens Act.'" *Blue Water Fishermen's Ass'n*, 158 F. Supp. 2d at 122 (quoting A.M.L. Int'l, Inc., v. Daley, No. 00-10241-EFH (D. Mass. May 18, 2000)). This means that ESA section 7 claims against fisheries management under the FMCA must be brought pursuant to the FMCA citizen-suit provision.

[197] *See* Nat'l Marine Fisheries Serv., Strategic Plan for Fisheries Research 41 (1998) (stating that most of the "recent gear research . . . has been accomplished through grants . . . [that] have gone to fishers, or to organizations such as states and universities, which carry out the research with the help and cooperation of the fishing industry").

[198] *See id.*

[199] *See* 16 U.S.C. § 1535(d) (2006); Mass. Div. of Marine Fisheries, Budgets, http://www.mass.gov/dfwele/dmf/information/budgets.htm (last visited Apr. 27, 2009). The funds from Congress are funneled directly through the National Fish and Wildlife Foundation—an entity established by Congress to distribute funds for wildlife management.

whale entanglement by fishing gear, there is, at best, limited private entrepreneurial motivation to develop whale-safe technology.

In 2007, the Marine Mammal Commission (MMC) sponsored a review of NMFS's program to reduce the risk of entanglement of great whales in fixed gear.[200] The study was highly critical of NMFS's methods, and doubted their ability to reduce risk for whale entanglement. The report stated:

> Complicating efforts to resolve the entanglement issue is the fact that NMFS has a dual charge—on one hand to promote and manage fisheries and on the other to protect right whales and encourage their recovery. These often-conflicting mandates are administered by separate programs within the agency. The role of the federal regional fishery management councils and the various state fishery management agencies in developing management plans complicates matters further. To overcome these complications, the entanglement problem needs to be recognized as a fishery management crisis that requires decisive action at the highest levels of government. The extinction of the North Atlantic right whales would represent a fundamental failure in both fishery management and the conservation of protected resources in the United States.[201]

In 2007, the Government Accounting Office (GAO) did a study on NMFS's proposed 2007 ALWTRP and found it critically lacking in offering any reasonable expectation of possible success.[202] Further, "its scientific stock assessments and entanglement reports . . . showed that—despite current regulatory measures—right and humpback whales are being seriously injured or killed by entanglements in commercial fishing gear at a rate that limits the species' ability to recover."[203]

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[200] Randall R. Reeves et al., Report of the North Atlantic Right Whale Program Review 3 (2007), *available at* http://www.mmc.gov/reports/workshop/pdf/rightwhalereport.pdf.

[201] *Id.* at 41.

[202] U.S. Gov't Accountability Office, National Marine Fisheries Service: Improved Economic Analysis and Evaluation Strategies Needed for Proposed Changes to Atlantic Large Whale Protection Plan 7–8 (2007), *available at* http://www.gao.gov/new.items/d07881.pdf. The report stated that "NMFS has not developed strategies for fully evaluating the effectiveness of the proposed regulatory changes," and that "NMFS has not yet developed a strategy for monitoring the level of industry compliance." *Id.*

[203] *Id.* at 5. The report also found that "NMFS developed the specific proposed gear modifications [i.e., ground-line rules] based, in part, on a study of gear found on entangled right and humpback whales that indicated that *all* parts of commercial fishing gear

2. State Regulation of Fisheries to Reduce Entanglement

In 1998 the Massachusetts Division of Marine Fisheries (MDMF) was forced to take measures to reduce the risk of right whale entanglement in state-licensed fishing gear as a result of an order issued in the *Strahan v. Coxe* decision. The court found that state fishing regulatory agencies—in that case the MDMF—are liable for violating the ESA section 9 take prohibitions as a result of great whales being entangled in the fishing gear they license and regulate. The court held that any entanglement is a violation of the ESA section 9 prohibitions.[204] The *Coxe* decision resulted in an order for the MDMF to form a "working group" to come up with a plan to reduce the risk of entanglement in licensed fishing gear. In order to "get out from under the order,"[205] the agency decided to impose entanglement prevention measures, and in so doing established a right whale conservation program (MDMF Right Whale Program) that continues to the present day.[206] The MDMF added on to its codified regulations a section that is dedicated to right whale conservation—titled "Northern Right Whales"[207]—containing special rules to reduce the risk of entanglement of right whales in the fishing gear it licensed.[208] The MDMF also has produced an annual report on the activities of its MDMF Right Whale Program.[209]

The MDMF Right Whale Program in practice, however, has not operated to make state-licensed fishing gear whale-safe. It has adopted no requirement that fishing gear be whale-safe. Its whale conservation program is centered upon an agreement executed with a fishing indus-

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create a risk of entanglement for these whales," implying that other portions of the gear, like vertical lines, should have been regulated. *See Id.* (emphasis added).

[204] *See* Strahan v. Coxe, 127 F.3d 155, 168 (1st Cir. 1997).

[205] Interview with David Hoover, Legal Counsel, Massachusetts Division of Marine Fisheries, in Boston, Mass. (Apr. 1999).

[206] *See* Erin Burke & Dan McKiernan, Mass. Div. of Marine Fisheries, Right Whale Conservation, www.mass.gov/dfwele/dmf/programsandprojects/ritwhale.htm (last visited Apr. 27, 2009). "*MarineFisheries* Conservation Program was established in 1997 with input from the Massachusetts Endangered Whale Working Group. The Working Group was appointed by the federal court and charged with devising measures to minimize harm to Northern Right Whales in state waters." *Id.*

[207] 322 Mass. Code Regs. §§ 12.00–.11 (2006).

[208] *See id.* § 12.01.

[209] Erin Burke & Dan McKiernan, Div. of Marine Fisheries, Massachusetts Division of Marine Fisheries Right Whale Conservation Program: 2005 Projects and Accomplishments (2005). Because the *Strahan v. Coxe* injunction only required actions to benefit the right whale and no other great whale species, the state agency, like NMFS, targeted its rules to reduce entanglement risks for right whales alone, without direct regard for the migration patterns and locations of other species of great whale. *See* 322 Mass. Code Regs. §§ 12.01–.11; Strahan v. Coxe, 127 F.3d 155, 158 (1st Cir. 1997).

try association and an NGO intervening in the *Strahan v. Coxe* lawsuit,[210] calling for use of sinking ground lines with no meaningful restraints on vertical buoy lines, and funding for another NGO to seek out entangled right whales and attempt disentanglement.[211] In practice, the MDMF Right Whale Program serves to shield the agency from being subjected to further court orders requiring it to actually end the entanglement of whales in state-licensed fishing gear.

Since no other state has been subjected to a lawsuit, no Atlantic coastal state other than Massachusetts has initiated its own state-based conservation effort for great whales to reduce the risk of entanglement. The initiative for whale conservation is deemed primarily to be a federal problem—a "top down" government problem. By contrast, marine fisheries regulation is deemed a "bottom up" regulatory scheme where states have the major role in coastal fisheries—in direct terms by licensing fishing in state waters, and on the federal level by state dominance of federal regional fisheries management councils. Since the fishing industry has dominating influence in the state fishing agencies, it effectively controls NMFS. To close this circle, it can be observed that some of the most progressive politicians in coastal states are ironically among the most ardent supporters of the fishing industry's "self-regulation."[212] Coupled with consistent support in Congress,[213] the industry has been aided by state fisheries agencies in resisting efforts to force fisheries to comply with ESA prohibitions on whale entanglement and state environmental review laws.

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[210] The Massachusetts Lobstermen's Association (MLA) and the Conservation Law Foundation (CLF) brokered the deal with the state. *See* Strahan v. Coxe, 939 F. Supp. 963, 963 (D. Mass. 1996) (showing that CLF did intervene in the suit).

[211] Currently the MDMF gives funding to the Provincetown Center for Coastal Studies to look for right whales—especially entangled ones. Provincetown Center for Coastal Studies, Annual Report 2007: A Year in Review 7, 11 (2008), *available at* http://www.coastalstudies.org/pdf/AnnRep07_2.pdf (stating that the group disentangles large whales and identifying the Massachusetts Division of Marine Fisheries as a donor).

[212] Richard Gaines, *Senators' Moves to Right Fishing Rule in Limbo*, Gloucester Daily Times Online (Mass.), Mar. 18, 2009, http://www.gloucestertimes.com/punews/local_story_077221439.html?keyword=topstory (describing northeastern Senators' united front against a specific federal fishing regulation).

[213] In Massachusetts, Senators Kennedy and Kerry consistently support the fishing industry's self-regulation, as do Senators Collins and Snowe in Maine. Like the late Representative Gerry Studds, federal legislators who are otherwise among the most progressive have regularly championed the commercial fishing industry's interests. *See id.*

## III. The Green Knight Has Left the Building: Failure of the Current Societal Paradigm for Protection of Great Whales

Over the past century, our national policies and strategies for environmental protection have been fundamentally based on the ideas and efforts of individual altruistic citizens who organized others in citizen-based political movements for environmental protection.[214] These are the "Green Knights" whose efforts are almost wholly responsible for current state and federal regulatory schemes for protecting environmental quality for the general benefit of the public. First with the late 19th century "conservation" movement and then the later 1970s "environmental" movements, more than two dozen federal statutes were drafted and regulatory systems designed and pushed by these private entities—not by legislatures, business, or by the normal established players in our system of government.[215] Individual Green Knights have been the primary driving forces for enforcement of most of the breakthrough and precedent-setting lawsuits enforcing environmental laws.[216] Statutes are written, agencies are created to implement the statutory policies, and—faced with the traditional ability of regulated industries to constrain regulatory agencies—citizen groups have to fight a chronic battle to push agencies and courts to enforce the laws as written.[217]

Individual Green Knights have generally been driven by idealism, philosophy, and science, not by prospects for personal financial enrichment. Green Knights like Aldo Leopold,[218] Rachel Carson,[219] Jane Goodall,[220] Ralph Nader,[221] and Dian Fossey,[222] are some of the exam-

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[214] Zygmunt J.B. Plater et al., Environmental Law and Policy: Nature, Law, and Society 73 (3d ed. 2004). The first Earth Day in 1970 was the idea of such an individual.

[215] For an excellent history of the creation and evolution of environmental law, specifically as it pertains to national parks, see Joseph L. Sax, Mountains Without Handrails: Reflections on the National Parks (1980).

[216] The National Environmental Policy Act, for example, has never been actively enforced by the federal government against the federal agencies that were its primary addressees. Plater et al., *supra* note 214, at 477. Many other statutes have had their primary enforcement from voluntary citizen efforts rather than official enforcement. *See* James R. May, *Now More Than Ever: Trends in Environmental Citizen Suits at 30*, 10 Widener L. Rev. 1, 2 (2003).

[217] *See* Zygmunt J.B. Plater, *Dealing with Dumb and Dumber: The Continuing Mission of Citizen Environmentalism*, 20 J. Envtl. L. & Litig. 9, 26–27 (2005).

[218] *See generally* Aldo Leopold, A Sand County Almanac (1949).

[219] *See generally* Rachel Carson, Silent Spring (1962).

[220] *See generally* Jane Goodall, In the Shadow of Man (rev. ed. 1988).

[221] *See generally* Ralph Nader, Unsafe At Any Speed (1965).

ples of the tradition, inspiring pioneering laws protecting the environment, beginning with the very American idea of national parks.[223] The National Forest system, laws protecting migratory birds and raptors, the Clean Water Act, the Clean Air Act, the Endangered Species Act, and the ban on DDT are just a small part of their accomplishments.[224]

Sadly, however, no individual Green Knight has come forward to protect great whales in the Urban Sea. There indeed are a number of whale interest organizations among the community of "Ocean NGOs"—the amalgam of NMFS-licensed whale researchers, non-profit corporations, commercial fishermen associations, and other miscellaneous entities that evince an interest in whales and other marine mammals.[225] However, despite the horrific harm and threat of extinction for great whales that result from commercial fisheries' practices, in the author's observation, most of these organizations have been markedly hesitant to confront the commercial interests that cause whale entanglement, and sometimes take positions disfavoring common sense protections afforded whales by law.[226]

The refusal of Ocean NGOs to demand that NMFS and state fishing agencies license only whale-safe fishing gear, including non-entangling vertical lines, is a prime example of how professional actors

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[222] *See generally* DIAN FOSSEY, GORILLAS IN THE MIST (1983). According to many sources, the last words in Fossey's journal were, "When you realize the value of all life, you dwell less on what is past and concentrate more on the preservation of the future." *See, e.g.*, Diane Toroian Keaggy, *Who Would You Invite?*, ST. LOUIS DISPATCH, Apr. 7, 2007, at 4.

[223] George Catlin, a Western artist in the 1830s, is generally credited with first expressing the idea that there should be "a nation's Park containing man and beast" which ultimately led to the creation of the National Park system. Isaac Kantor, *Ethnic Cleansing and America's Creation of National Parks*, 28 PUB. LAND & RESOURCES L. REV. 41, 45 (2007). *See generally* LINDA LEAR, RACHEL CARSON: WITNESS FOR NATURE (1997) (explaining how the publication of Carson's *Silent Spring* lead to the U.S. ban on DDT).

[224] An incomplete list of environmental laws that allow for citizen enforcement would number more than a dozen; the author believes that citizen action may have spurred the creation of many of these. *See* PLATER ET AL., *supra* note 214, at 407 & n.38.

[225] *See, e.g.*, Conservation Alliance for Seafood Solutions, Who We Are, http://www.solutionsforseafood.org/whoweare (last visited Apr. 25, 2009) (showing a list of ocean-centric organizations working with the seafood industry); Massachusetts Ocean Partnership, Current Partners, http://www.massoceanpartnership.org/partners.html (last visited Apr. 25, 2009) (providing a list of organizations in the Massachusetts Ocean Partnership).

[226] This includes their opposition to the enforcement of the ESA and MMPA prohibitions against individual commercial fishermen for entanglements. The author had to subpoena NGO employees to testify as expert witnesses at a federal trial where the Massachusetts fishing agency was being sued as responsible for unlawful whale entanglements. *See generally* Strahan v. Pritchard, 473 F. Supp. 2d 230 (D. Mass. 2007). These witnesses claimed that sinking ground-line would save whales from entanglement although no one could provide any example of a whale ever being entangled directly in floating ground-line. *See id.* at 238–39.

in marine issues align their positions with commercial interests. Off the record, informed members of these organizations identify vertical buoy lines on lobster pots and fixed gill nets as the critical element in whale entanglement, and the optimal object for stringent regulation to end the cruelty, injuries, and death caused by entanglement. Publicly, however, they shrink from efforts to enforce strict industry compliance with the ESA.

As noted in this essay, vertical buoy lines pose the prime entanglement threat to whales, but NGOs have deferred to industry and NMFS preference for the questionable theory that requiring sinking horizontal ground-lines should be the focus of regulatory efforts to protect the whales, avoiding the obvious measure of vertical line regulation. In ongoing citizen litigation seeking to enforce ESA section 9 prohibitions against placement of vertical buoy lines, moreover, it has not been possible to get NGO testimony in support of those facts.[227]

The question is raised why NMFS would require lobster pot fisherman each to spend a good deal of money substituting sinking ground-line for existing ground-line without compelling proof that it works.[228] Why too does industry accept an NMFS directive making it spend hundreds of thousands of dollars for a red herring, an unproven fix, in the absence of a lawsuit?[229] In part it may be an instance of

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[227] Representatives of the Provincetown Center for Coastal Studies, the New England Aquarium, and the Humane Society of the United States were subpoenaed to testify at trial in both *Strahan v. Pritchard* and *Strahan v. Holmes*. They were asked repeatedly to speculate on whether or not whales are currently being entangled either in Massachusetts or other state coastal waters. Each testified that they did not know and refused to even speculate on the possibility. *See* Strahan v. Holmes, 595 F. Supp. 2d 161, 163–64 (D. Mass. 2009); *Pritchard*, 473 F. Supp. 2d, at 236–38.

[228] Congress was lobbied by NMFS and the Ocean NGOs to buy sinking ground-line for the commercial fishing industry. *See* Memorandum from Laura Ludwig, Bottom Line Project Director, Gulf of Maine Lobster Foundation, to all Maine state and federal lobstermen (Dec. 14, 2007), *available at* http://www.gomlf.org/docs/Survey_Letter_and_FAQ_12_07_final.pdf. It appropriated millions of dollars for the buyout. The International Federation of Animal Welfare (IFAW) (known for its campaign against Newfoundland seal hunts) partnered with the MDMF to administer the distribution of the money to commercial fishermen. The IFAW has zealously maintained the need for sinking ground-lines and has opposed NMFS focusing on vertical buoy lines. In January 2008, it also hosted a conference for commercial fishermen in Boston, Massachusetts to discuss the cost, problems, and alleged benefits associated with converting to sinking ground-line. *See* Press Release, Int'l Fed'n of Animal Welfare [IFAW], IFAW and Atlantic Offshore Lobstermen's Association to Host Whale Friendlier Lobster Gear Summit (Jan. 3, 2008), *available at* http://www.ifaw.org/ifaw_asia_pacific/media_center/press_releases/01_03_2008_17390.php.

[229] In the written comments submitted to NMFS's draft Environmental Impact Statement and, and during the comment period for the draft 2007 ALWTRP, there is not a single letter from a licensed commercial fisherman or any established NGO complaining that

NMFS selecting the most easily accommodated adjustment—a simple substitution of one line type that works in effectively the same manner as existing lines—for which, moreover, the federal government could be expected to subsidize the cost.[230] In addition, the industry and NMFS may not want to set a precedent where commercial fisheries are aggressively targeted to comply with environmental laws.

The sinking ground-line theory originated from a negotiated process between commercial fisherman and the Massachusetts Division of Marine Fisheries (MDMF), with the active collaboration of several Ocean NGOs, in the working group ordered by the court in *Strahan v. Coxe*. The MDMF chose employees of the New England Aquarium (NEA), the Provincetown Center for Coastal Studies (CCS), and two fishermen to be its representatives on this working group.[231] The judge's order in *Coxe* required the working group to produce a recommendation to the court on how fixed gear could be made safer for right whales—with no reference to other endangered whales.[232] A one-vote majority—an alliance between the state parties (NEA, CCS, MDMF), commercial fishermen, and the Conservation Law Foundation (CLF),[233] a major NGO—recommended the use of sinking groundlines, with continuation of disentangling attempts for entangled right whales, and data collection in right whale aerial sighting surveys that would be done by the CCS and NEA under contract to the MDMF.[234] Dissents came from the author, the Sierra Club, the HSUS, and an independent scientist.

The *Strahan v. Coxe* lawsuit then ended in 2001 after the judge accepted a joint 2001 intervention motion from CLF and the Massachu-

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there was no factual basis to assert that sinking ground-lines reduce the threat to great whales. Taking of Marine Mammals Incidental to Commercial Fishing Operations; Atlantic Large Whale Take Reduction Plan Regulations, 72 Fed. Reg. 57,104, 57,132–36 (Oct. 5, 2007) (codified at 50 C.F.R. pts. 229, 635, 648) (showing that no party challenged the factual basis for the ground-line changes).

[230] *See* 50 C.F.R. § 229.32(c)(1)(ii)(D)–(E) (2008); Dan McKiernan, *Lobstermen Gear-up with Whale-safe Lines: Federal Grant Subsidizes Replacement Line*, DMF NEWS, Second Quarter 2004—Third Quarter 2004, *available at* http://www.mass.gov/dfwele/dmf/public-ations/dmfn_q3_04.pdf.

[231] *Court Orders Additional Right Whale Protection Measures*, DMF NEWS, Fourth Quarter 1996, *available at* http://www.mass.gov/dfwele/dmf/publications/dmfnq496.htm.

[232] *Id.*

[233] The Conservation Law Foundation is an environmental law group based in Massachusetts. Conservation Law Foundation, Home, http://clf.org/ (last visited Apr. 25, 2009).

[234] Every meeting of the working group was audio taped by the MDMF and copies of those tapes were supplied to the author. The author also attended most of the meetings.

setts Lobstermen's Association (MLA).[235] The court then accepted a five-year settlement agreement—signed by CLF, MDMF, and the MLA, but not the author, who maintained the litigation—adopting the working group's one-vote majority proposal for sinking ground-line regulations, plus surveys and disentanglement efforts, and dismissed the case. CLF initially requested more than $300,000 in attorneys' fees but later withdrew the demand. The outcome was that the judge, who earlier had found that state licensing of entangling gear violated ESA section 9's prohibition, simply dismissed the case with prejudice. Massachusetts then instituted a remedy that lacked in scientific evidence of effectiveness, ignored the primary role of vertical line entanglement, and only nominally attempted to reduce the entanglement of endangered right whales in state-licensed fishing gear. Other states' fixed gear fisheries thereafter also agreed to a NMFS mandate for sinking ground-lines, which was included prospectively in the 2007 ALWTRP.[236]

After the *Coxe* order was signed, the MDMF issued a contract to CCS to do aerial survey and disentanglement work,[237] and provided grants to the NEA for further research.[238] The commercial industry then successfully lobbied Congress to fund lobstermen's conversion to sinking ground-lines, in the program managed by the International Federation of Animal Welfare.[239]

In 2008, two Ocean NGOs—the Whale and Dolphin Conservation Society and the Ocean Conservancy—engaged in a campaign with the

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[235] The CLF and the MLA intervened in a joint effort to terminate the action after the author insisted on going to trial. In the author's opinion, the CLF was a "Trojan Horse" plaintiff—an intervening plaintiff who seeks to serve the interests of the current defendant—entering the case to help the state get a resolution in its favor by posing as the required plaintiff for a settlement deal. *See* Strahan v. Coxe, 127 F.3d 155, 157, 161, 171–72 (1st Cir. 1997); *see also* Strahan v. Pritchard, 473 F. Supp. 2d 230, 233 (D. Mass. 2007) (discussing the outcome of *Strahan v. Coxe*).

[236] Diane Borgaard et al., Nat'l Oceanic and Atmospheric Admin., Guide to The Atlantic Large Whale Take Reduction Plan 3 (2008), *available at* http://www.nero.noaa.gov/whaletrp/plan/ALWTRPGuide.pdf. In the author's opinion, Maine and other states made formal protests of the requirement, but filed no administrative appeals, to establish an appearance that the rule represents a middle-ground compromise. *See* John H. Cushman Jr., *Lobstermen See Threat in Whale Protection Plan*, N.Y. Times, May 5, 1997, at A10.

[237] Erin Burke & Daniel McKiernan, Mass. Div. of Marine Fisheries, Right Whale Conservation Program: 2006 Projects and Accomplishments 3 (2007), *available at* http://www.mass.gov/dfwele/dmf/programsandprojects/rwcp_2006.pdf.

[238] *See* David C. Hoover, *Massachusetts' Actions that Help Protect the Northern Right Whale*, DMF News, Second Quarter 1996, *available at* http://www.mass.gov/dfwele/dmf/publications/dmfnq296.htm.

[239] *See* Memorandum from Laura Ludwig, *supra* note 228. At an informal press event, Senator Edward Kennedy handed a symbolic check to the IFAW president and an industry representative from the MLA. McKiernan, *supra* note 230.

Massachusetts Lobstermen's Association to promote the Massachusetts lobster industry as environmentally safe because of its use of sinking ground-lines.[240] The parties to the campaign hope to convince the public to buy Massachusetts lobsters as a "green alternative" to lobsters caught by Canadian and Maine fisheries, which are not required to use sinking ground-lines.[241]

Some of the reasons for the political passivity and avoidance of scientific data by the agencies and some—though not all—NGOs are readily apparent. The commercial fishing industry enjoys well-organized political representation in Congress and in coastal states.[242] The industry and its coalitions exercise substantial influence upon state marine fishing agencies and NMFS itself.[243] The industry's political heft is discernible in financial "greenmail" grants to certain NGOs from oil companies and developers in exchange for nonconfrontation on issuance of potentially threatening development permits.[244] Because most financial support for marine research comes from entities responsive to exploitative uses of the ocean—primarily NMFS, the U.S. Navy, and the federal Min-

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[240] Press Release, Whale and Dolphin Conservation Society, Ocean Conservancy, Whale and Dolphin Conservation Society and Massachusetts Lobstermen Launch "Massachusetts Lobster Fishing: The Right Way" (July 3, 2008), *available at* www.wdcs-na.org/downloads/MassLobsterJuly08.pdf. The press release states that they—along with the Massachusetts Lobstermen's Association and Massachusetts Division of Marine Fisheries—are "working with local restaurants, fish markets and seafood dealers to ensure that residents and visitors know to buy locally caught lobster." *Id.*

[241] *See id.*; Alan Burke, *Green Lobster Bands Mark Whale-Safe Fishing*, GLOUCESTER DAILY TIMES ONLINE, July 8, 2008, *available at* http://www.gloucestertimes.com/punews/local_story_190110942.html. The MLA fishermen now put "green bands" on their lobsters to identify them in the marketplace as "whale safe," as affirmed by the NGOs. *Massachusetts Lobster Fishing: The Right Way*, RIGHT WHALE NEWS, August 2008, at 1, 4 (stating that "[a] new labeling and education program in Massachusetts will encourage businesses and consumers to buy lobsters caught locally, using fishing practices that are safer for whales").

[242] *See* James M. Acheson, *Lobster and Groundfish Management in the Gulf of Maine: A Rational Choice Perspective*, 65 HUM. ORG. 240, 240, 249 (2006); Walter W. Fondren III, Coastal Conservation Association, http://www.joincca.org/TIDE/Stand%20Up.html (last visited Apr. 25, 2009). In 2008, Massachusetts passed an act that, in the author's opinion, protects commercial fishing as valuable to the state, with insignificant attention given to protecting marine wildlife from development. *See* 2008 Mass. Acts 143.

[243] *See* Acheson, *supra* note 242, at 240, 249; Fondren, *supra* note 242.

[244] *See* Patrick Anderson, *LNG Port Operator's Donations Go Beyond Minimums*, GLOUCESTER DAILY TIMES ONLINE, June 9, 2008, *available at* http://www.massenergy.com/news/GlousterDailyTimes-2008-06-09-LNG_port_operators_donations_go_beyond%20_minimums.pdf. In 2008, two international liquid natural gas (LNG) companies (Neptune LNG LLC and Excelerate Energy LLC) seeking to develop LNG port facilities in Massachusetts each agreed to pay $23.5 million to a consortium of commercial fishermen and NGOs in exchange for the issuing of required permits by state and federal review agencies. This arrangement was a stated requirement for the state to approve its permit for the project. *See id.*

eral Management Service—successful research grant applicants reflect a strong incentive toward research paths that do not conflict with commercial interests.

A number of the NGOs involved in ocean issues—soliciting millions of dollars annually from well-intentioned contributors to their appeals for ocean conservation—have chosen to develop and maintain acquiescent "partnership" relationships with the commercial fishing industry.[245] Some Ocean NGOs supported the 1994 MMPA Amendment scheme of granting blanket immunity to fishermen who entangle whales. The linkage has been explained as a battle between which of the two becomes endangered: whales or fishermen.[246]

The issue is not that such relationships are inappropriate per se, but rather that they are inappropriate if they derogate efforts for conserving threatened marine life. That NGOs have avoided eliminating, reducing, or redesigning vertical buoy lines is only one primary indication that such relationships are inappropriate. In response, a justification voiced by these NGOs is that no regulation at all would be possible if politically opposed by the industry, so that NGOs must take whatever they can get as better than nothing.[247] NGOs that conduct whale research, in particular, are understandably sensitive to the commercial fishing industry.[248] Researchers rely on receiving ESA and MMPA permits issued by NMFS, and need to be attuned to the agency's political position and orientation. Many professional field researchers rely on commercial whale-watch operations, which typically have originated from or been linked to commercial fishing operations, as "platforms of opportunity" for their observations and research and as a source of supplementary funding.[249] As with the fisheries regulatory agencies and many Ocean NGOs, the resulting professional conflict-avoiding alignment of researchers with the fishing industry reflects a symbiosis.

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[245] *See* Conservation Alliance for Seafood Solutions, *supra* note 225; Massachusetts Ocean Partnership, Current Partners, *supra* note 225.

[246] *See* Tora Johnson, Entanglements: The Intertwined Fates of Whales and Fishermen 4, 264 (2005).

[247] *See* IFAW, *supra* note 228 (noting that collaboration between conservationists and industry is necessary).

[248] *See id.*

[249] *See* Whale Watching Tours, Whale Watch trips from Cape Ann, North of Boston, http://www.yankeefleet.com/ (last visited Apr. 25, 2009). *See generally* Stacie Koslovsky, Wandering Whale Watchers: The Effectiveness of Whale Watches as a Platform of Opportunity for Data Collection (May 2008) (unpublished M.S. thesis, Duke University), *available at* http://dukespace.lib.duke.edu/dspace/bitstream/10161/516/1/MP_smk20_a_200805.pdf.

## IV. A New Paradigm for Whale Survival in the Urban Sea: Whales as Protected Features of the Urban Sea, Like Mountains or Rivers

### A. *What Is to Be Done Generally?*

Great whales should no longer be conceived merely as wildlife. Their legal status should be as protected essential features of the environment, like notable mountains or river valleys that are preserved solely for their aesthetic value.[250] They should formally be treated as "Twenty-Ton Canaries" by federal and state governments, protected not just for their own welfare, but also to ensure the generic welfare of the whole ocean ecosystem. Whales' current status as a "living resource" managed by agencies designed to support commercial fisheries must be changed if great whales are to be adequately protected or expected to survive in the long term.

### B. *Remedial Propositions*

#### 1. Transfer Management Authority for Great Whales Away from NMFS and Re-Task the Marine Mammal Commission to Oversee Actions for Protection of Great Whales.

Implementing a rationally based and effective conservation effort for great whales requires legal responsibility to be transferred to an agency whose employees see getting the job done as their core task. At a minimum, the conservation responsibilities for great whales should be transferred to NOAA's National Ocean Service (NOS) or NOS's Office of Ocean and Coastal Resource Management (OCRM)—established by the Coastal Zone Management Act (CZMA).[251] Either would be a far better platform for overseeing the protection and recovery of endangered whale populations.[252] The ESA and MMPA state that direct re-

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[250] *See generally* Jim Thorsell & Larry Hamilton, *A Global Overview of Mountain Protected Areas on the World Heritage List* (Int'l Union for Conservation of Nature, Working Paper No. 6, 2002), *available at* http://www.unep-wcmc.org/wh/reviews/MOUNTAIN_PROTECTED_AREAS.pdf; Nat'l Park Serv., National Heritage Areas Program, http://www.nps.gov/history/heritageareas/VST/INDEX.HTM (last visited Apr. 25, 2009) (describing various "Heritage Areas" that are nationally protected).

[251] Coastal Zone Management Act, 16 U.S.C. §§ 1451–1452 (2006);, Nat'l Ocean Serv., Nat'l Oceanic & Atmospheric Admin., Office of Ocean and Coastal Resource Management, http://coastalmanagement.noaa.gov/welcome.html (last visited Apr. 25, 2009).

[252] Both of these agencies' missions are—in their statutory charges—focused on holistic protection of the marine ecosystem, and neither of them license or regulate any commercial

sponsibility for great whales is assigned to NOAA under these acts, but this need does not require subdelegation to NMFS; NOAA has full statutory discretion to transfer these duties to NOS from NMFS.[253]

Additionally, Congress should transfer responsibilities from NMFS to the Marine Mammal Commission to oversee and approve issuance of research licenses on great whales; the adoption of MMPA take reductions plans (TRPs) and other tasks to be performed under MMPA section 118; the issuance of ESA section 10 incidental take permits (ITPs) and ESA section 7 biological opinions involving great whales; and the appointment and administration of ESA recovery teams for the great whales.

### 2. Transfer State Management Authority for Great Whales to a State's Coastal Zone Management Office or at a Minimum to Its Endangered Species Agency

States should adopt a whale-safe standard for management of coastal industrial projects and state commercial fishing. Management responsibilities for great whales in a state's coastal waters should be established within that state's Coastal Zone Management office. A whale-safe environmental standard to be enforced pursuant to state environmental review laws could indeed utilize great whales as "Twenty-Ton Canaries" where the status of their population's health would be used to generally indicate the health of the local marine environment. The safety of the great whales and the overall health of the marine envi-

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activity at all. These agencies mostly conduct scientific research on the ocean environment and review the impacts of commercial development on the marine environment. Nat'l Ocean Serv., Nat'l Oceanic & Atmospheric Admin., NOAA's National Ocean Service: Program Offices, http://oceanservice.noaa.gov/programs/ (last visited Apr. 25, 2009); Nat'l Ocean Serv., Nat'l Oceanic & Atmospheric Admin., NOAA Office of Ocean and Coastal Resource Management: Our Programs, http://coastalmanagement.noaa.gov/programs/welcome.html (last visited Apr. 25, 2009). The web site for NOS states that "NOAA's National Ocean Service (NOS) is the nation's premier science agency for oceans and coasts" and its mission is "[t]o provide science-based solutions through collaborative partnerships to address evolving economic, environmental, and social pressures on our oceans and coasts." Nat'l Ocean Serv., Nat'l Oceanic & Atmospheric Admin., About the National Ocean Service, http://oceanservice.noaa.gov/about/ (last visited Apr. 25, 2009). NOS administers the National Marine Sanctuaries Program. The web site for OCRM similarly emphasizes its mission is to *protect* the coastal marine environment. NOAA Office of Ocean and Coastal Resource Management: Our Programs, *supra*.

[253] *See* 16 U.S.C. § 1536(a)(2) (2006). It could be argued that NOAA from the start should have assigned its MMPA and ESA duties to a subagency other than NMFS. ESA requires that NOAA take no action that would jeopardize the survival of listed species, and in weighing that choice it could have been expected that NMFS would dilute regulatory protections conflicting with the commercial fishing industry. *See id.*

ronment would be reinforced if every proposed marine activity was assessed for its impact on great whales during any environmental review process. Alternatively, state jurisdiction over great whales should be transferred away from state agencies linked to the commercial fishing industry and assigned to the state agencies committed to endangered species protection.

3. Vigorously Enforce the Prohibitions of the ESA, MMPA, and Applicable State Laws Against Commercial Fishermen Whose Gear Entangles Whales

The NMFS's de facto offering of safe harbor to fishermen from ESA or MMPA enforcement must end. There is no market incentive for private enterprise to develop further whale-safe fishing technologies if commercial interests are not required to utilize them. The current blanket refusal by NMFS and state law enforcement agencies—and the Coast Guard, which has concurrent enforcement authority under ESA[254]—to prosecute fishermen whose gear entangles whales is a primary factor responsible for the continuing entanglement-related killing and injuring of great whales.

4. Radically Redesign Federal and State Regulation of the Commercial Fishing Industries

No single programmatic change would better benefit the conservation of the ocean's wildlife than a radically conceived redesign and redirected regulation of the fishing industry, ending the jurisdiction of industry-oriented "private" government fishing agencies. A modern redesign would charge protection-focused agencies to serve the purposes of ensuring that fisheries resources are not depleted by the industry, that the industry will be conducted in an environmentally whale-safe manner, and that industry will experience full review under state and federal environmental laws. Elements of this agenda include: (1) ending industry-dominated commissions that oversee fisheries agencies, and changing the fisheries agencies' core operating duty to the task of assuring that commercial fishing permits comply with environmental protection goals; (2) retasking the function of the revised fisheries regulatory agencies from promoting commercial fisheries to an oversight duty of protecting a public resource from industry exploitation; (3) ensuring, in the issuing of fishing leases to private parties, that

[254] *Id.* § 1540(e)(1) (2006).

whale-safe and environmentally sound fishing practices are required on the lease-holders' part, and that fees for fishing lease holders assist in offsetting the cost of environmental law compliance, including the cost of developing whale-safe fishing technology; (4) installing a system of market-based access to fisheries resources for specified areas, thereby ending the process of issuing annual permits for the right to fish for a minimal, fixed processing fee;[255] and (5) giving "green fishermen" preference in access to state and federal fisheries resources.[256]

### 5. Impose Professional Ethical Standards on Licensed Whale Researchers and on NGOs Who Accept Funds to Lobby for Whale Conservation

Ethical standards of professional conduct should be enforced on all who are licensed under the ESA or the MMPA to conduct research on endangered whales.[257] The need for professional ethical standards is especially strong for publicly funded researchers and those directly licensed by government agencies to do research on great whales under those statutes. Ethical standards for researchers need to provide public

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[255] Five-year leases could be issued for fishing in specific designated blocks of 100 square miles, under competitive bidding processes without perennial renewals of individual fishing licenses. Leases would not be issued to individual fishermen but to collective groups or business interests with the financial resources to pay for environmental mitigation. The substantial revenue from such lease sales could fund scientific research to establish effective quotas. Restraints on commercial fishing practices would be spelled out in the individual lease agreements, rather than being imposed as government regulations.

[256] As part of any bid for a lease, bidders would include a conservation plan to insure that commercial fishing under the lease would not have an unacceptable impact on the marine environment. An offer to use innovative whale-safe technology could be part of that plan. The cost of conservation programs would be borne by the bidders, and they would be allowed to compete as to the most aggressive conservation measures. Bidders that make a significant commitment to "green fishing" in excess of other bidders would be given "green credits" to offset higher bids from "non-green" bidders. As a result, "green fishing" would be promoted based on individual motivation. Non-green bidders would over time be driven out of the market, unlikely to wait five years without fishing after a losing bid, to return and offer a non-green bid. If anything, the most realistic way for a new bidder to seize control of a leased area would be to offer an even "greener" bid than the current lease holder.

[257] The Wildlife Society (TWS) is an NGO that conducts a "certified wildlife biologist" program that requires a wildlife biologist to comply with a set of professional ethical standards in order to be certified. The Wildlife Society, The Wildlife Society Certification Program, http://joomla.wildlife.org/index.php?option=com_content&task=view&id=29&Itemid=234 (last visited Apr. 25, 2009). The ethical standards promoted by TWS directly address the problem of a wildlife biologist becoming influenced to serve the vested interests that determine the funding for its research activities. The Wildlife Society, Ethics and Professional Conduct for Wildlife Biologists, http://joomla.wildlife.org/index.php?option=com_content&task=view&id=72&Itemid=72 (last visited Apr. 25, 2009).

disclosure of field data about whales obtained in the course of licensed research (for example, accessibility of photographs and databases of whale sightings and locations). Licensed species conservation research should not be based on funding from commercial interests or agencies that promote commercial activity.

Ethical conduct requires that transparency standards be imposed on agency scientists doing research and assisting in environmental reviews. Agency employees should not consult with commercial interests until reviews have been completed, and discussions with reviewing agency staff should be recorded and conducted under protocols that preserve the independence of the reviewing staff. NGOs that publicly advertise a commitment to protect wildlife should open themselves to public review and comment to insure that these purposes are served with objectivity and accuracy.

The failure to protect great whales is in no small part due to such failures on the part of whale researchers and advocacy NGOs. Only researchers who become certified under professional ethical standards should be allowed to obtain research permits under the ESA or the MMPA. Even NGOs that professionally involve themselves with wildlife conservation should be subject to an ethics oversight certification.

### 6. Amend the ESA and MMPA to Correct the Defects that Prevent These Acts from Fulfilling Their Intent to Protect Great Whales

The ESA and MMPA are substantively deficient in their abilities to protect whales.[258] ESA section 9 prohibitions should be amended to explicitly prohibit activities in a specific habitat (for example, lobster pot fishing in Cape Cod Bay) that are operating in a manner as a whole that has resulted in numbers of killed or injured members of a listed species in that habitat in the past. Injunctive relief against individual fishermen could be issued upon a simple showing that a party was attempting to conduct the prohibited activity, without any need to prove that a member of a listed species might be taken in the future by parties conducting the activity. This would compel regulated parties to apply for and receive ESA section 10 incidental take permits and bear the burden of proving the stringent requirements for avoiding killing or injuring listed species.

This change would also assist citizen suit plaintiffs in protecting great whales from commercial fishing as regulated by state agencies.

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[258] *See generally* Marine Mammal Protection Act of 1972, 16 U.S.C. §§ 1361–1407 (2006); Endangered Species Act of 1973, 16 U.S.C. §§ 1531–1544 (2006).

Perhaps due to the Eleventh Amendment of the United States Constitution and comity considerations, and despite the liability holding in *Strahan v. Coxe*, federal courts appear unwilling to enjoin state agencies' licensing activities that incidentally take ESA-listed species. The proposed change would support successful enforcement suits by expressly rejecting the plaintiffs' unprovable burden of demonstrating by the preponderance of evidence that a specific piece of gear will more likely than not entangle a great whale in the future.

7. Rethink Participation in the International Whaling Commission

The International Whaling Commission (IWC) is an old-school whaling entity, not a modern resource conservation agency. It needs to be replaced by a new kind of treaty organization. Until then, the United States should simply pull out of participation in the IWC and rigorously impose sanctions on whaling nations so long as the IWC maintains its role as a harvest-regulating agency. This current role is inconsistent with modern standards of treating whales as essential attributes of the marine environment. The IWC should be replaced with a new protocol forever banning hunting of whales, establishing them under international law as "Twenty-Ton Canaries," with their health and welfare serving as an international environmental standard for ensuring ocean conservation.

## Conclusion

The "Twenty-Ton Canary" is trying to tell us something. Our nation's current operating paradigm for protecting the environment and preventing the irreparable loss of biodiversity and ecosystems appears to be insufficient as applied to great whales living in the Urban Sea of the United States and Canada. Great whales continue to be killed and injured by a number of avoidable human causes, including entanglement by fixed commercial fishing gear in the Urban Sea of the United States and other nations where they live and breed. The avoidable harm continues despite the passage of the MMPA and the ESA and the broad support of the public for the welfare of whales. The destruction of the great whales is occurring as collateral damage to the exponentially increasing industrial exploitation of the ocean by a nation that in principle reveres them and has extensively protected them under law.

The essential elements of the Green Knight paradigm are: (1) focused and uncompromising advocacy for the environment; (2) an alerted public and press who demand action; (3) willingness on the part of a democratic government to pass effective and comprehensive

environmental protection laws; (4) willingness on the part of agencies to incorporate the normative mandate to protect wildlife; and (5) the willingness of courts to force agencies and industry to protect the environment. For the great whales, some aspect of each of these essential elements has simply failed to crystallize.

It is proposed that things must fundamentally change. The great whales should be legally treated as protected attributes of the environment like mountains and rivers, and no longer regulated in the category of a harvestable living resource. NOAA should reassign great whales from NMFS to an agency solely interested in protecting biodiversity in the ocean, such as the National Ocean Service. NGOs should change their modus operandi to that of a Green Knight, taking responsibility to develop whale-safe fishing gear and working to assure that the fishing industry is legally bound to use it. The great whales still await a Green Knight to come to their rescue.